

THE GARDEN MAGAZINE



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643-21

(331-M.20)

THE GARDEN MAGAZINE

*Devoted to Planting and Managing the Grounds About the Home
and to the Cultivation of Fruits, Vegetables and Flowers*

Volume IV
August, 1906, to January, 1907



NEW YORK
DOUBLEDAY, PAGE & COMPANY

1907

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INDEX TO THE GARDEN MAGAZINE

Volume IV—August, 1906, to January, 1907

An asterisk signifies that the article is illustrated

- Acer palmatum*, 183.
Aconite, 34.*
 winter, 135.
 Adam's needle, 16.
Adiantum, 183, 296.
Agapanthus umbellatus, 190.
 Albee, Helen R., article by, 74.
 Alcoholism, 9.
 Alder, black, 235.*
 All the Barberries Worth Growing, 122.*
 All the Beeches Worth Growing, 58.*
 All the Hollies Worth Growing, 234.*
Althaea, 36, 142.
Amaryllis, 188.*
 Amazon water-lily, 71.
 Andrews, D. M., photograph by, 280.*
Andromeda floribunda, 236.
Anemone, 28, 57, 132, 146, 277.
 Japanese, propagating, 206.
 Angell, Herbert E., photographs by, 20, 27, 58, 59, 60, 62, 63, 64, 65, 66, 75, 110, 114, 115, 117, 122, 158, 174, 177, 180, 182, 229, 248, 280, 281, 282, 292, 293.
 Angell, I. M., articles and photographs by, 63, 128, 129.
Anhalonium fissuratum, 278.*
 Answers to Queries, 92, 160, 206, 260, 310.
 Anthracnose on currants, 12.
Antirrhinum majus, 284.*
 Aphides, 24, 65.
Aplectrum hyemale, 15.
 Apple Fameuse, 67.
 leaf-crumpler, 179.*
 maggot, 42.
 Apples protected for winter, 184.*
 April, pink flowers for, 76.
 seeds started in, 65.
 Aquatic Plants, Best, The, 180.*
Aquilegia vulgaris, 74.
Araucarias, propagating, 312.
Arborvitæ, 16, 19,* 177.*
Ardisia crenulata, 243.*
Arethusa, 13, 15.
 Arrow-wood, 16.
 Artichoke, Jerusalem, 186.*
 Ascension lily, the culture of, 162.
 A 6 x 8-foot Garden, 228.*
Asparagus, 140, 225, 230.
 all Winter, 52.
 in baskets, 244.
 medeoloides, 282.
 planting 162.
 plumosus, 282-283.*
 propagation, 312.
 Sprengeri, 231, 244, 282, 283.*
 Asters, transplanting, 233.
Astilbe Japonica, 188,* 277.
 Atomizer, 296.
Aucuba Japonica, 244.*
 August, bulbs for planting in, 27.
 pink flowers for, 76.
 Plant Evergreens in, 44.
 Automobiles and insects, 178.
Azaleas, 16, 57, 66, 225, 250.
 Epsom Salts for, 228.*
 for house plants, 231.*
 Indian, 23,* 65.*
 mollis, 23, 24.*
 summer care of, 23.
Azolla Caroliniana, 182.
 Bag worm, 225.
 Banana, 183, 277.
 Barberries, All Worth Growing, the, 122.
 culture of, the, 148.
 protecting, 177.*
 Purchasers' Guide to, 148.
 Barberry, The Common, 258.
 Japanese, 16.
 Bark beetles, 179.
 Barnes, Parker Thayer, articles by, 23, 244,* 246, 278,* 298.
 Barron, E. M., articles and photographs by, 78, 140, 183, 294.*
 Barron, Leonard, articles and photographs by, 20, 63, 240,* 278.
 Barron, L. & E. M., article by, 62.
 Baskets, a plant for, 282.
 Bayed Border, A, 16.*
 Bean Poles Where There are no Poles, 231.*
 Beans, 9, 146.
 Bedding, Ornamental, 19.
 Bedding plants, making trees from, 94.
 winter, 241.
 Beds, bulbous, 110,* 117.*
 Beeches, All Worth Growing, 58.*
 Key to Ornamental, 86.
 Beets, 184, 232.
 Begonias, 66, 230, 277.
 Bell-flowers, 74.
 Berberis, 122,* 123,* 124, 258.
 Berries, red, 234.
 Betula alba, 241.*
 Beverage, A Delightful Winter, 88.
 Biennials, 30.
 Birch, white, 241.*
 Black alder, 260.
 Blackberry, pruning, 57.
 Black raspberry, 67.
 Bladderwort, 182.
 Blanket flower, 36.
 Bleeding heart, forcing, 189.
 Blue flowers, bulbs for, 119.
 Bone meal, 200.
 Bones, Utilize the, 310.
 Book Reviews,
 American Gardens, 266.
 Dwarf Fruit Trees, 146, 266.
 Garden Color, 266.
 How Ferns Grow, 90.
 How to Make a Fruit Garden, 266.
 Seasons in a Flower Garden, The, 90, 266.
 Some English Gardens, 266.
 Spring Wild Flowers, 42.
 Books, The Best Gardening, for Christmas Presents, 266.
 Bordeaux mixture, 12.
 Border planting, effective, 110.*
 Borders, keep tidy, 57.
 Borer, currant, 12.
 Bougainvillea, 25,* 26.
 Box from cuttings, 162.
 Box trees, protected, 177.*
 Branch layering, 67.
 Branton, Ernest, articles by, 46, 80.
 Brine for pickling, 76.
 Brodiaea, 57.
 Broom, common, 242.*
 Brown tail moth, 178.*
 Budding, 69.*
 Buds, propagating by, 69.
 Bugs, Few in Clean Gardens, 40.*
 Bulb beds, mulching, 196.
 Some Suggestive, 110,* 116.*
 Bulb culture, 154.
 Bulbocodium, 134.
 Bulbs and Perennials for November Planting, 188.
 autumn-blooming, 189.
 Cape and Dutch, 57, 66, 94, 277.
 fall planting, 110.*
 for August Planting, 27.*
 for Christmas, 128.*
 Bulbs and Perennials, forcing, 198, 277.
 for house culture, 27.
 March-blooming, 131,* 135.
 planting, 146.
 potted in October, 128.
 store for winter, 140.
 summer storage, 191.
 That Bloom Outdoors in March, 131.*
 using up forced, 117.*
 Burlaps, bagging roses with, 177.*
 Burning bushes, 285.*
 Bur-reeds, 180.*
 Business Man, Water Lilies for the, 70.*
 Cabbage, 57, 146.
 caterpillars, 40.
 Cactuses, 230.
 as House Plants for the Busy Man, 278.*
 Cactus, making a cutting of, 298.
 Cactuses and Desert Plants, 298.
 Caladiums, 140, 312.
 Calceolarias, 23,* 57, 65, 66.
 California Department, 46, 80, 146.
 Callas, spotted, 182.
 Calopogon pulchellus, 15.*
 Calypso, 13, 15.
 Camassia, 57.
 Campanula Medium, 32,* 75.*
 Campbell, W. N., article by, 256.
 Cannas, 57, 64, 140.
 Canning and Cooking Tomatoes, 78.
 and Preserving, 76.
 Canterbury bells, 9, 32,* 34, 75.*
 "Cape" and "Dutch" bulbs, 57, 277.
 Cardboard straight jackets, 66.
 Cardinal flower, 38, 183.
 Carnations, 61, 66, 146, 277.
 insect pests of, 206, 208.
 Carpenter, L. B., article and photographs by, 233.*
 Carpet plants, 196.
 Carrots, 146, 184,* 185, 232.
 Cassena berry, 235.
 Caterpillars, 178.*
 Cat-tails, 183.
 Cauliflower, 57, 146, 225, 260.
 Cedar, red, 16.
 Celery, 184.
 Celery, 9.
 blight, preventive for, 310.
 On a City Lot, 227.
 Centaurea Cyanus, 75.
 Ceratopteris thalictroides, 182.
 Cereus, 278,* 279.
 Chamæcyparis pisifera, 16, 19.
 Charcoal, 65.
 Cheesecloth covers in spring, 144.*
 Cherry, double flowering, 64.
 Chervil, 9, 57.
 Chicory, 57.
 Children, Winter playground for, 238.
 Chionodoxa, 132, 135.
 Chives, 294.*
 Christmas and Easter bloom, azaleas for, 57, 66.
 berry, 235.
 Flowers in Thirty Days, 233.
 holidays, bulbs for the, 66, 129.*
 polyanthus narcissus for, 66.
 Presents, The Best Gardening Books for, 266.
 Presents, Tying up the, 250.
 Red-berried Plants for, 244,* 182.
 Rose, 189, 173.
 Window Garden, 230.*
 "Christ-thorn," 234.
 Chrysanthemums, 16, 65, 66, 75, 173, 204, 260.
 Cineraria, 23,* 57, 65, 66.
 Cion, 68.
 Citrous seedlings, 67.
 Clarke, Harold, articles by, 118, 188.
 Clarkia, 74.
 Clark, W., article by, 30.
 Classified Tables for Fall Planting, 118.
 Cleft grafting, 68.
 Clematis, immune, 226.*
 Coal gas, 246.
 Cobæa scandens, 282.
 Coal tar, 288.
 Cockspur thorn, 239.
 Codlin moth, 42.
 Colchicum autumnale, 27,* 28, 57, 66, 144.
 Coldframes, 22, 30, 142, 150, 214, 260, 306.
 Coleus, 57, 230.
 Columbine, 74.*
 Combination garden, 232.*
 Compost heap, 173.
 Conard, Henry S., articles and photograph by, 70, 180, 181.*
 Conifers, 9, 17, 240, 242.*
 Conservatory, piazza, 64.*
 Coreopsis, 36.
 Corn, 258.
 ear-worms, 82.
 salad, 9, 57.
 stalk borer, 42.
 sweet, 9.
 Cornell University, Horticultural Department, photograph by, 10.
 Cornus Amomum, 16.
 Cosmos, 74,* 75.*
 Coult, A. A., photograph by, 70.
 Cover Designs,
 August: Ladies' Tresses (*Spiranthes cernua*), 1.
 December: Barberries (*Berberis vulgaris*), 220.
 January: Window Garden, 267.
 November: A Trained Specimen Chrysanthemum Plant, 163.
 October: China Asters and Hardy Phlox, 95.
 September: Pink Day-blooming Water-lilies (*Nymphaea Marliacea*, var. *rosea*), 49.
 Crab grass, 152.
 Cranberry, 16.
 Cratægus, 235.
 Creeping Juniper, 19.
 Crinum, 28.
 Crocuses, 27,* 57, 129,* 134, 198, 225.
 how to plant, 134.*
 Crown imperial, 57.
 Cucumber beetle, 40.
 tree, 92.
 Cucumbers, 61.
 Cultivation of Hardy Orchids, The, 13.*
 Cultural Guide to Hardy Orchids, A, 38.
 Culture of Barberries, The, 148.
 Cup-and-saucer-flower, 282.
 Currant, 10,* 57.
 borer, 12.
 cuttings, 67.*
 varieties, 11.*
 worm, 12.
 Cut flowers all winter, 26.*
 a trick for, 115.
 from spring until frost, 229.*
 How to Keep, 84.

INDEX TO THE GARDEN MAGAZINE—Continued

- Cuttings, bedding plants, 57.
 conifer, 130.*
 currant, 69.*
 evergreen, 131.*
 grape, 57.
 green and hardwood, 130, 148.
 hardwood, 67, 94, 144.*
 making, 94, 142.
 phlox, 142.
 rose, 94.
 Cutworms in the Greenhouse, 200.
 Cyclamen, 24, 57, 188,* 230.
 Cyperus, 181.
 Cypressess, 16, 19.
 Cypripedium, 13, 14.*
 Cytisus Canariensis, 26.
 Daffodils, 116,* 131, 158.*
 Best for Outdoor Planting, The, 113.*
 naturalizing, 113,* 133,* 162.
 Dahlias, 57, 75,* 92, 140.
 Dahoon, 235.
 Daisies, 61, 277.
 English, 32.
 Damping off, 65, 131, 282.
 Dandelion, 152.
 Darlington, E. D., article and photographs by, 138, 184.*
 Daumont, Mabel, article by, 228.
 Davallia bullata, 291.*
 Deep-bayed Border, A, 16.*
 Delightful Winter Beverage, A, 88.
 Delphinium, 16.
 Deming, Harold, photographs by, 283.
 Deutzia, 16, 142.
 a Phenomenal, 230.*
 Dewberry, 67.
 Dianthus barbatus, 38, 74.
 Dibble, 154.
 Dicentra spectabilis, 189.
 Diervilla hybrida, 16.
 Digitalis, 16, 34, 36.*
 Dock, 152.
 Doctored tree, a, 288.*
 Dodocatheon, 24.
 Dog's-tooth violet, 57.
 Doogue, Luke J., articles and photographs by, 190, 291.*
 Double planting not desirable, 127.
 Drainage, for plants, 65, 282.*
 Drills for seed, 281.*
 Dry leaves, 32.
 Duckweeds, 183.
 Duggar, B. M., photograph by, 136.
 Dugmore, A. Radclyffe, photographs by, 13, 14, 15, 59, 185, 186, 294, 295.
 Dunbar, John, article by, 130,* 148, 285.*
 Duncan, J. W. article by, 17.
 Easily Made Pickles, 76.
 Plant Stand, An, 296.*
 Echinocactus, 279,* 280.*
 Echinopsis multiplex, 278.*
 Eichhornia, 181, 182.*
 Eldredge, Arthur G., photographs by, 289, 290.
 Elephant ears, 57.
 Elm, cork bark, 256.
 suckering, 162.
 Endive, 57, 160.
 English holly, 244.
 Epiphyllum Russellianum, 278.*
 Epsom Salts for Azaleas, 228.*
 Eremurus, 28,* 73,* 256.
 Enonymus Worth Growing, Every, 285.*
 Evergreens, 44, 122, 242.*
 broad-leaved, 177, 236,* 244.
 hollies, culture of, 236.
 plants, some, 122.
 Raising Your Own, 130.*
 Red-berried, 234.
 winter protection for, 176.*
 vine, 285.
 Every Euonymus Worth Growing, 285.*
 Eulalias, 176.*
 Euonymus, 16, 242, 302, 285.*
 Euphorbia splendens, 278.*
 Euryale ferox, 72.
 E. V. W., article by, 72.
 Excellent Way of Handling Bulbs for Forcing, An, 198.
 Exchange garden, a successful, 216.
 F. A. G., article by, 90.
 Fall Care of Lawns, The, 152.
 planting, 109.
 Classified Tables for, 118.
 six favorite shrubs for, 121.
 plowing, 166.
 sowing, seeds for, 120.
 Fall web worm, 178.
 Farrand, M. K., articles by, 64, 248.*
 Fern Ball, Making the Most of a, 291.*
 Ferns, 64, 230.
 flowering, 183.
 for ponds, 180.*
 Watering and Potting, 296.
 Fertilizers, 11, 26, 94, 229.
 for lawn, 94, 208.
 Few Bugs in Clean Gardens, 40.*
 Fig marigolds, 26.*
 "Fillers," when to take out, 127.
 Fischer, W., photographs by, 18, 19.
 Flats, 281.*
 Fletcher, S. W., articles and photographs by, 10,* 67,* 125.*
 Floating heart, 180.*
 moss, 182.
 Flower seeds for fall sowing, 120.
 For Summer Sowing, 30.*
 Flowers and vegetables, combination garden of, 232.*
 Every Day from Christmas till Easter, 128.*
 Forcing, 225, 252, 277.
 fruit trees, home made, 292.
 Forget-me-not, 16, 66, 74, 144, 277.
 Formal garden, parterre planting in a, 117.*
 Four Insect Pests That Are Easily Killed Now, 82.
 Foxglove, 9, 16, 34, 36,* 74, 144.
 Fragrance, flowers for, 284.
 Frames, 225, 252.
 Freesias, 9, 57, 64, 66, 198, 225, 277.
 Fresh Vegetables All Winter, 183.
 Frost, protection from, 57.
 Fruit garden, five-acre, 125.
 Planning the Home, 125.
 trees, 254, how to perpetuate, 67.
 Making More and Better, 67.*
 Fruits, small and pome, 120.
 under glass, 292.*
 Fuchsias, 230, 260.
 Fullerton, E. L., article and photograph by, 76, 289.*
 Fungous diseases, 288.
 Furnaces, 246.
 Gaillardia aristata, 36, 38.
 Galanthus Elwesii, 131, 132,* 135, 198, 225.
 Garden Enemies, 252.
 Gardener's Reminder, 9, 57, 109, 173, 225, 277.
 Garden For Sixteen Cents, A, 232.*
 Japanese, A Home-made, 248.*
 of Pink Flowers, A, 74.
 Problems That Need Solving, More, 54.
 Publications, 42, 90, 146, 266.
 Books for Christmas Presents, The Best, 266.
 Gardening, Record-breaking experience in, 226.*
 Garlic, 295.*
 Gas, 246.
 and plants, 22.
 Gasteria linguiformis, 278.*
 Genista, 26.
 Geraniums, 23,* 57, 230.
 German catchfly, 74.
 Getting Ready for the Winter, 174.*
 Gladiolus, 57, 61, 64, 75, 140, 188.*
 Glass, 57.
 Glass house, a veranda, 64.
 Glory-of-the-snow, 135.
 Gloxinia, 277.
 Golden bell, Fortune's, 16.
 club, 182.
 glow, 57.
 Goodyera, 14, 15.*
 Gooseberries, 10,* 11, 57.
 Gooseberry mildew, 12.
 Gorgon plant, 72.
 Gourd Flowers, 208.
 Grafting, 67, 68, 288,* 290.
 when done, 68.
 Grape juice, 88.
 Oregon, 122, 123.*
 Grapes, 57, 92, 127, 166, 208, 225.
 Grass, aquatic, the stateliest, 181.
 drives, 125.
 pink, 13, 15.
 Grasshoppers and cutworms, 82.
 Grasses, ornamental, 176.*
 Graves, Nathan R., articles by, 116,* 174, 196.
 photographs by, 18, 21, 22, 23, 26, 28, 30, 32, 34, 59, 75, 110, 111, 116, 117, 123, 124, 130, 131, 166, 174, 175, 176, 177, 188, 190, 234, 235, 236, 237, 240, 241, 242, 244, 284, 285, 286, 287.
 Grecian windflower, 135.
 Greenhouse, 189, 238.
 cutworms in, 200.
 glass, 20.
 Growing Peaches in the, 292.*
 repairs, 20.
 Small, the, 252.
 standard widths for, 22.
 summer, 20.
 Ground-cover, the best low, 124.
 drained, 260.
 Growing Mushrooms on a Ping-Pong Table, 135.*
 Peaches in the Greenhouse, 292.*
 Winter Salads in a "Pit," 61.*
 Gunnera, 183.
 Habenaria, 14,* 15.
 Hale, Marcia E., article by, 198.
 Hardy Border, The, 30, 196.
 Hare's-foot fern, 291.*
 Harlequin Bugs, 40.
 Harvard Botanic Garden, European beech in, 60.*
 Hawthorns from seed, 162.
 Heating, 22, 64.
 pipes, 57.
 window garden, 230.
 Hedge, hemlock, 19.*
 European beech, 60.*
 Heliotrope, 57, 66, 283.*
 Hellebore, 12, 189.
 Hemlock, 18, 19,* 242.*
 Hepatica, 189, 190.*
 Herbaceous borders, 166.
 Herrington, A., article and photographs by, 187.
 Heteromeles, 235.
 Hibbard, C. J., photograph by, 14.
 Hibiscus, 16, 142, 183.
 Hodgkins, Homer, article by, 238.*
 Hogenon, J. C., article by, 228.*
 Hogs and sheep in an orchard, 42.
 Hollies, 260.
 Worth Growing, All the, 234.*
 Holly berries, 242.
 shipping, 237.*
 Hollyhocks, 36, 74, 76,* 144.
 Holm oak, 237.
 Holly-tree, 234.
 Home-made Contrivances, 142.
 Japanese Garden, A, 248.*
 Honeysuckle, Morrow's, 16.
 Horseradish, 186.*
 Horsford, F. H., article by, 256.
 Hotbed, 252.
 making the, 306.
 sash, lean-to built of, 60.*
 House leek, 280.
 House Plants, 246, 296.
 for Christmas, 230,* 243.*
 from seed, 281.*
 Lily-of-the-Valley as a, 192.*
 Raising Your Own, From Seed, 281.*
 Watering, 277.
 How to Keep Cut Flowers, 84.
 How to Keep Plants Healthy in the House, 246.
 Humble Currant and Gooseberry, The, 10.*
 Hyacinths, 27, 57, 64, 66, 116,* 128,* 131, 146, 173, 198, 225.
 water, 181, 182.*
 Hydrangea, 16, 160, 310.
 Ilex verticillata, 260.
 Ilexes, the best, 233.*
 Impatiens, 277.
 Important October Work, 140.
 Incarvillea, 74.
 Ink berry, 235,* 240.*
 Insecticides, 254.
 Insect pests in September, 82.
 destroying, 178.*
 on cactuses, 300.
 Winter Work Against, 178.*
 Iris, 9, 16, 27, 61.
 Ivy, 230, 282.
 propagating, 206.
 Ixia, 57, 146, 198, 277.
 Japanese Garden, A Home-made, 248.*
 Jerusalem cherry, 244,* 250, 282.
 Joys of a "Cool Greenhouse," The, 23.*
 July, pink flowers for, 76.
 June Bug, 82.
 June, pink flowers for, 76.
 Juniper, 16, 19.
 cuttings, 130.*
 Irish, 176.*
 Kentia, 230.
 Key to the barberries, 148.*
 Euonymus, 302.
 ornamental beeches, 86.
 water-lilies, 72.
 Kill the Cutworms in the Greenhouse, 200.
 Kinnikinnick, 16.
 Kirby, A. M., article by, 113, 158.
 Koch, Lillie, article by, 258.
 Kohlrabi, 185.
 Koster, B. M., quoted, 227.*
 Labels, 156.
 Labor, a plan to economize, 126.
 Lachenalia, 57.
 Lady's slippers, 13,* 14.
 Ladies' tresses, 13.
 Lantana, 57, 230.
 Larkspurs, 9, 16, 75.
 Lath screens, 32.
 Lathyrus latifolius, 75.
 Lavatera trimestris, 75.
 Lawn, 57, 94.
 fall care of, 152.
 fall sown, 208.
 specimens, evergreen, 19.
 Southern, 202.*
 with crocuses, 134.*
 Layering grapes and dewberries, 67.
 Leaf mold, making, 150.
 spot, currant, 12.
 Leaves, dry, 32.
 Lemna, 183.

INDEX TO THE GARDEN MAGAZINE—Continued

- Lettuce, 9, 22, 57, 61, 146, 232.
 Leucojum, 132.*
 Leucothoe Catesbaei, 242.*
 Lice, 179.
 Lilac, 16.
 Lilies in August, 9.
 planting, 66.
 Two Best Tall, the, 187.*
 Lily, Annunciation, 28.*
 Best situation for, Bermuda, 9, 27, 208.
 blue African, 190.
 calla, 64.
 candidum, 27, 28.*
 Chinese sacred, 128.*
 Easter, 28,* 66.
 Henryi, 187.*
 longiflorum, 173, 277.
 Madonna, 27, 28.*
 of-the-valley, 57, 188, 192,* 206.
 of-the-Valley as a House Plant, The, 192.
 superbum, 173.
 Lime for sour soil, 92.
 Lime on lawns, 154.
 soils, cure for, 228.
 Lime-sulphur spray, 12.
 The Best, 254.
 Lime-water for worms, 162.
 Limnanthemum, 182.*
 Limncharis, 180,* 182.*
 Liparis, 15.
 Lizard's tail, 182.
 Lobelia, 38, 183, 277.
 Lonicera, 16.
 Lotus, the, 71,* 180.
 Egyptian, 181.
 Lucas, Eleanor M., article by, 296.
 Lychnis, 74.
 Lycoris, 57.
 McAdam, Thomas, article by, 27,* 131,* 154, 243,* 266.
 McCollm, G. E., photograph by, 294.
 McFarland, J. Horace, Co. photographs by, 15, 23, 24, 28, 115, 289.
 McFarland, Wm., photograph by, 180.
 Magnesium sulphate on lime soils, 228.
 Magnolia, 183.
 Maidenhair fern, 183, 230, 296.
 Making Cuttings and Sowing Seeds in Fall, 142.
 Leaf Mold, 150.
 More and Better Fruit Trees, 67.*
 the Most of a Fern Ball, 291.*
 Southern Lawns, 202.
 Manure, care of, 94.
 for house plants, 65, 66.
 hen and pigeon, 206.
 mulching of, 140.
 storing, 208.
 what is a ton of, 92.
 Maple, 183, 242.*
 Marble, Flora Lewis, photograph by, 14.
 Marguerite, 277.
 Marigolds, 232.
 Marsh mallows, 16, 183.
 Marsilea quadrifolia, 181,* 182.
 Mason, Albert R., article by, 88.
 Mats, straw, 61.
 May, pink flowers in, 64, 76.
 Melon pests, 40.
 Mending Old Trees, 288.*
 Mesembryanthemum, 26,* 278.*
 Mice, poison for, 206.
 Michigan Agricultural College, Horticultural Department, photographs by, 10, 11, 12.
 Midsummer flowers, 75.
 Mignonette, 61, 284.*
 Mildew, 12, 225.
 Miller, Louise Klein, article and photograph by, 232.*
 Miller, Wilhelm, article by, 13,* 38, 234,* 285.*
 Moccasin flower, 14.*
 Mole, shrew, 177.
 Montbretia, 208.
 Month for Forethought and Action, A, 57.
 Monkshood, 34.*
 Morgan, G. F. photograph by, 21.
 Morton, Verne, photograph by, 13, 14.
 Mosnat, H. R., article and photograph by, 231.*
 Moss pink, 74, 76.*
 Moth, brown-tail, 225.
 Mound layering, 67.
 Mrs. T. C. T., article and photograph by, 233.
 Mulching, 10, 156, 225.
 Much your Hardy Borders and Bulb Beds in November, 196.
 Musa Ensete, 183.
 Mushrooms, 57, 135,* 173.
 for Christmas, 135.*
 Spawn, pure culture, 136.
 Mustard, 9.
 Myosotis, 16, 74.
 Myriophyllum proserpinacoides, 180.*
 Myrsiphyllum asparagoides, 282.
 Narcissus, 64, 66, 129,* 133,* 146, 173, 225, 233.
 Chinese sacred, 64, 173, 225, 233.
 for bloom, winter, 66, 173.
 naturalized, 113,* 133.*
 Nasturtium, 26, 144.
 Nectarine, 293.*
 Nephrolepis, 296.
 Nemophanes, 235.
 New Jersey Agricultural Experiment Station, photograph by, 63.
 Nolte, Phineas, article by, 80, 150, 250.
 November planting, bulbs for, 187.*
 Work, Important, 166.
 Nymphæas, 70, 71,* 180.
 Oak, white, from seed, 160.
 October, flowers in, 66.
 Work, Important, 140.
 Onions, 146.
 Only Way to Grow Large, Mild, 306.
 Tribe, Quality Even in the, 294.*
 Welsh, 9, 296.
 Opuntias, 278,* 280.*
 Orange, budding the, 68.*
 Orchard, hogs and sheep in, 42.
 Orchids, native hardy, 13, 38.
 Ornithogalum, 57.
 Orontium aquaticum, 182.
 Osmunda, 183.
 Other Red-berried Plants for Christmas, 244.*
 Outdoor Winter Garden, An, 240.*
 Oxalis, 57.
 Oyster plant, 184.*
 Painting a House Without Ruining the Vines, 233.*
 Pansies, 32, 61, 144, 146, 277.
 Paris daisies, 66.
 Parrot's feather, 180.*
 Parsnips, 146, 185.
 Paulownia, 183.
 Pea, perennial, 75.
 Peas, 9, 146.
 Peach, Crawford, 67.
 Peaches, Growing in the Greenhouse, 292.*
 Peet, Louis Harman, article and photographs by, 58.
 Pelargoniums, 23,* 57, 230.
 Peonies, 57, 80.
 sowing, 160.
 Pepper, H. H., article and photographs by, 142, 144.
 Peppers, ornamental, 244, 246.
 Perennials and Bulbs For November Planting, 188.*
 Personal Experiences, 88, 138, 214, 256.
 Petrea volubilis, 26.
 Petunia, 277.
 Phlox, 57, 76,* 142, 144.
 annual, 75.
 Photinia arbutifolia, 235.
 Phyllocactus, 280.*
 Piazza conservatory, a, 64.*
 Picea, 17, 18, 19.*
 Pickerel-weed, 180,* 182.
 Pickles and sweet pickles, 76.
 Pine, Mugho, 16, 18.*
 Ping-pong Table, Growing Mushrooms on a, 135.*
 Pink flowers, a Garden of, 74.*
 Pinus, 16, 17, 18.*
 Pit, 57, 61, 66.
 Pitcher plants, 13.
 Place Planted for Winter Comfort, A, 238.*
 Plan for a Deep-bayed Border, A, 16.*
 for a place for winter comfort, 239.*
 for fruit gardens, 125,* 126,* 127.*
 Planning the Home Fruit Garden, 125.*
 Plant Evergreens in August, 9, 44.
 Planting, 10.
 Plans, 16,* 125, 238.*
 September ideal month for, 57.
 table for March-blooming bulbs, 135.
 tables, fall, 118.
 for winter vegetables, 184.
 tulip bed, A, 110.*
 Plant Peonies in September, 80.
 Pot-grown Strawberries in August, 46.*
 sprayer, 296.
 stand, 296.
 Plants, tying for travel, 250.
 Playground, 238, 239.
 Plum, Green Gage, 67.
 P. M., article by, 44.
 Pogonia ophioglossoides, 15.
 Pond, Ella C., article by, 256.
 Ponds, plants for bordering, 182.
 Pontederia cordata, 180,* 182.
 Poppies, 30,* 34, 38, 57, 74, 75, 144, 214, 233.*
 Poppy Bed Problem Solved, The, 233.*
 Portulaca, 233.*
 Potassium sulphide, 12.
 Potato beetle, 42.
 Potatoes, 183, 185.
 in Seven Weeks, 229.*
 sprouted, 229.*
 new, 186.
 Potting soil, 94.
 Powell, I. L., article by, 292.*
 Presby, Frank H., articles by, 61,* 227.*
 Presby, Harriet C., photographs by, 61, 227.
 Pricking out, 281.
 Prickly pear, 280.*
 Primrose, 61, 65, 66, 230, 284.*
 Privet, from hedges, 162.
 Profit of \$1.16 from 2 Cents' Worth of Corn, 258.
 Propagating by buds, etc., 69.
 cactus, 298.
 dewberries, 67.
 fruits from seed, 67.
 fuchsias, 260.
 grapes, 67.
 ivies, 206.
 Juniper, 130.*
 pelargoniums, 231.
 privet, 162.
 tulips, 191.*
 Protection against frost, 196, 230, 176.*
 Pruning, 10, 11, 12,* 225.
 Prunus, 64.
 Pteris, 183.
 Puckett, Emma, photograph by, 280.
 Purchasers' Guide to Barberries, 148.
 Euonymus, 302.
 Quality Even in the Onion Tribe, 294.*
 Tomatoes for the Home Garden, 62.*
 Quercus Ilex, 237.
 Quick Way to Cook Spinach, A, 90.
 Quince, Japan, 16.
 Radishes, 57, 146, 184, 185.*
 Railroad worm, 42.
 Raising Succulents at Home, 298.
 Your Own Evergreens, 130.*
 Your Own House Plants From Seed, 281.*
 Your Own Tulips, 190.
 Ranunculus, 57, 146.
 Rare Early Lily Growing Ten Feet High, A, 72.*
 Raspberry, 57, 67, 160.
 Rattlesnake plantain, 13, 14, 15.*
 Real Thing in Greenhouse Construction, The, 20.*
 Record-breaking Experiences in Gardening, 226.*
 Red and crimson flowers, bulbs for, 119.
 Red-barked shrubs, the best, 238.
 Red-berried plants for Christmas, 244.*
 shrubs, the best, 238.
 Berries That Last Two Years, 243.*
 campion, 74.
 flowers all winter, 279.
 spider, 24, 208.
 Refuse, burning, 166.*
 Repotting, 65.
 Reseda odorata, 61, 284.*
 Rhododendrons, 173, 177,* 206, 228, 242.*
 Rhubarb, 225.
 and Asparagus all Winter in a Hot-bed or Frame, 252.
 roots, 140.
 Rhus glabra, 16.
 Richardia albo-maculata, 182.
 Ripening Green Tomatoes, 140.
 Rockwell, F. F., article by, 281.*
 Root crops, how to keep, 185.*
 Root grafting, 67,* 68.
 Rose cuttings, making hardwood, 94.
 Roses, 65, 90, 142.
 mulching, 160.
 scurfy scale on, 160.
 spraying, 225.
 winter aspect of, 242.
 winter protection for, 174.*
 Rot, to prevent, 146.
 Rubber plants, making new, 94.
 Rust joints, 162.
 Rutabagas, yellow-fleshed, 185.*
 Sagittaria latifolia, 183.
 Salsify, 9, 184,* 185.
 Saltpetre, 260.
 Salvia, 144.
 Salvinia, 183.
 Sand in the window garden, 65.
 Sanderson, E. Dwight, articles and photographs by, 40,* 82, 178.*
 Sash, hotbed, 20.
 Saururus cernuus, 182.
 Savin, 19, 130.*
 Scale, San José, 12, 225, 254.
 School Gardening, 216.
 Scillas, 57, 132,* 135.
 Scorzoneria, 186.
 Scott, A. W., photographs by, 186, 279, 295.
 Wm., article by, 200.
 Screen for young plants, 142.*
 home made, 281.*
 Screenings, 281.*
 Seedlings, 144.
 Seedling stocks, 69.

INDEX TO THE GARDEN MAGAZINE—Continued

- Seed pans, 281.*
Seeds, how to start the, 281.
 sowing, 142.
 stratifying, 67, 237, 258.
 soil, 65.
Sempervivum tectorum, 278.*
September blooming bulbs, four, 27.
 flowers, 94.
 pink flowers for, 76.
 Plant Peonies in, 80.
Service yard, planning a, 239.
Shade beneficial to gooseberries and currants, 10.
 ideal plants for, 32.
Shaw, Louise, article and photographs by, 135, 230, 233.*
Shoe-peg sauce, 258.
Shrubs for planting plan, 16, 238, 240.
 red-berried, 122.
Shutters, 225.
Silk oak, 277.
Skimmia Japonica, 244.*
Small Greenhouse, the, 252.
Smilax, 230.
 the florists', 282.
Snapdragons, 24, 277, 284.*
Snowball, 142, 242.*
Snowdrops, 131, 132,* 135, 198, 225.
Snowflake, 132,* 135.
Snow, weight of, 20.
Soil for currants and gooseberries, 10.
 seed, 281.
Solanum Pseudo-capsicum, 244,* 282.
Some Suggestive Bulb Beds, 116.*
Soot for plants, 160.
Southerner's Reminder, The, 202, 204.
Spanish bayonet, 240, 241.
Sparaxis, 57, 146, 198, 277.
Sparganium eurycarpum, 180.*
Spear-flower, 243.*
Specimen Chrysanthemum, A, 204.
Spinach, 57, 146, 225.
 New Zealand, 9, 90.
 a Quick Way to Cook, 90.
Spindle tree, 16, 286.
Spiranthes cernua, 15.
Spireas, 16.
Sports and varieties, 92.
Sprinkling, 277.
Spruces, seedling, 17, 18,* 248.*
Squash bug, 40.
Squill, Siberian, 132.*
Staking, how to avoid, 66.
Standen, George, article by, 254, 303.
Star of Bethlehem, 57.
Steam heating, 22.
Sternbergia lutea, 28.
Stocks, 64, 146.
Stoves, kerosene and coal, 22.
Stratifying seeds, 67, 237, 258.
Strawberries, 67, 125, 160, 206.
 pot-grown, 9, 46.*
Straw overcoats, putting on, 174.*
Stumps, getting rid of, 260.
Succession of flowers, 128.
 tulips and hyacinths for, 66.
Suckers, 256.
Sumach, smooth, 16.
Summer sowing, flower seeds for, 30.
Sundews, 13.
Sunflowers, 231.
Sweet peas, 57, 61, 144.
 fall sown, 312.
 on May 17th, 227.
Sweet William, 38, 74.
Tabor, I G., articles and plans by, 16, 17, 238.
Tankage, 200.
Taylor, H. G., photographs by, 132, 134.
T. B., article by, 46.
Temperature, 260.
Ten Best Hardy Conifers, The, 17.*
Tent caterpillars, 166, 178,* 225.
Thalia divaricata, 181.
Thorn, evergreen, 16.
Three Months of Daffodils, 158.
Thrip, 24.
Thunbergia alata, 282.
Thuya occidentalis, 16.
Tickseed, 36.
Tile drain, 260.
Tillage, convenience in, 125.
 plan makes easy, 126.
Tipularia discolor, 15.
Tobacco, excessive use of, 65.
 extracts, 24.
 stems, 24.
Tomatoes, canning and cooking, 78.
 Cherry, 63.*
 cooking, 63.
 cultural methods, 62.
 how to train, 62.
 ideals in, 62.*
 Livingston's Globe, 62.*
 Stirling Castle, 63.*
 Stone, 62.*
 Varieties for Succession, 138.
Torenia, 277.
Training and pruning, The art of, 293.
Transplanting hollies, 237.
Trees, 238.
 and shrubs, 86, 148.
 Old, Mending, 288,* 312.
 transplanting, 312.
 young, cold splits in, 290.
Tropæolum majus, 26.
Troth, Henry, photographs by, 1, 22, 25, 28, 36, 46, 60, 73, 74, 76, 111, 112, 113, 114, 122, 181, 182, 184, 188, 189, 243, 244, 283, 286, 289.
Tsuga Canadensis, 18, 19.*
Tuberose, 140.
Tulips, 57, 64, 66, 110,* 128, 131, 146, 190,* 225.
 for Outdoor Planting, The Best, 110.*
 mixed early and late, 116.*
 Raising Your Own, 190.*
Turnips, 146, 185.
 how to peel, 186.*
Tussock moths, rusty, 178,* 179.*
Two Best Tall Lilies for November Planting, 187.
Tying up the Christmas Presents, 250.
Typha, 183.
Ulmus racemosus, 256.
Utricularia purpurea, 182.
Valves, 57.
Variety, changing a, 69.
Variegated effects, 242.
Vegetable garden, ridging, 160.
Vegetables and flowers, combination garden of, 232.*
 Fresh, All Winter, 183.*
 preparation for table, 186.
 seeds for fall sowing, 121.
 quality, 62, 183, 294.
Ventilator, 184.
Verbena, 277.
Vermont Experiment Station, photograph by, 26, 74, 187.
Viburnums, 16, 242.*
Victorias, 70,* 183.*
Vines, 233.
 and shrubs, hardwood cuttings of, 144.
 Grown for Foliage, 282.
 that flower all winter, 282.
 three showy greenhouse, 26.
Violets, 22, 61.
Wallflowers, 61.
Warner, Flora, article by, 227.
Washing bench as a plant stand, 296.*
Water clover, 181.*
Watering, 65, 230.
 cactus, 300.
 Ferns, 296.
 House Plants, 277, 296.*
Water-Lilies for the Business Man, 70.*
 tender night-blooming, 70.
Water Poppy, 181, 182.*
"Water snowflake," 182.*
Watson, J., article by, 288.
Wayfaring tree, 16.
Weed, Clarence M., article and photographs by, 192.
Weigela, 16.
Weinberg, F., photographs by, 279, 280.
When to Plant Eremurus, 256.
Whip-grafting, 67, 68.
White flowers, bulbs for, 118.
White grub, 82.
Whole Story of Bulb Culture in a Few Words, The, 154.
Wilcox, E. E., photograph by, 84.
Wild Flowers, Spring, 42.
Wilson, J. J., article and photograph by, 229.
Windbreak, 238.
Window gardens, 22,* 64,* 281.
 a Really Attractive, 230.*
Wind shield, 176.*
Winter berry, 235,* 236.
Winter, best flowers of late, 65.*
 bloom, 230.*
 Comfort, A Place Planted for, 238.*
 effects, types of, 240.
 Flowers in a Piazza Conservatory, 64.*
 Garden, An Outdoor, 240.*
 Work Against Insects, 178.
Wireworms, 82, 206, 208.
Wishbone plant, 277.
Wistarias, 64, 65,* 142.
Witch Grass, 208.
Woods soil, 66.
Woodwardia, 183.
W. R. S., article by, 152.
Wrench, Robert A., article and photograph by, 204.
Yaupon, 235.
Yellow flowers, bulbs for, 118.
Yew, 130,* 176.*
Yucca, 16, 240,* 241.
Zinnia, 75.*
Zuger, Peter, article by, 110.

AUGUST
1906
Vol. IV. No. I

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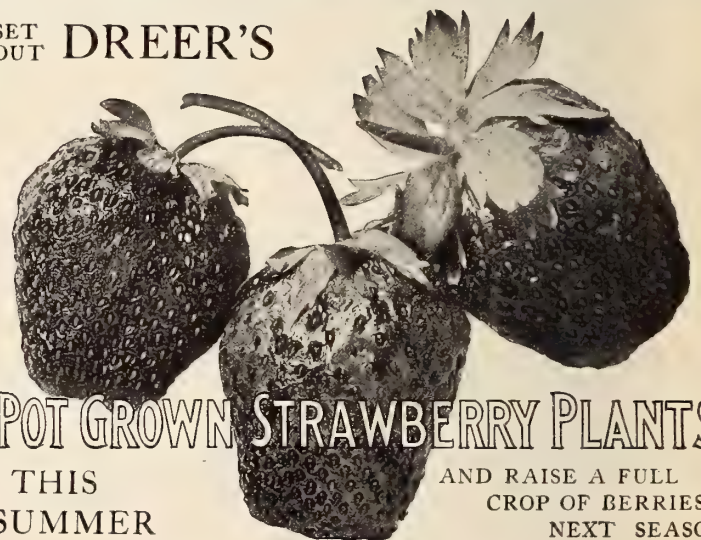
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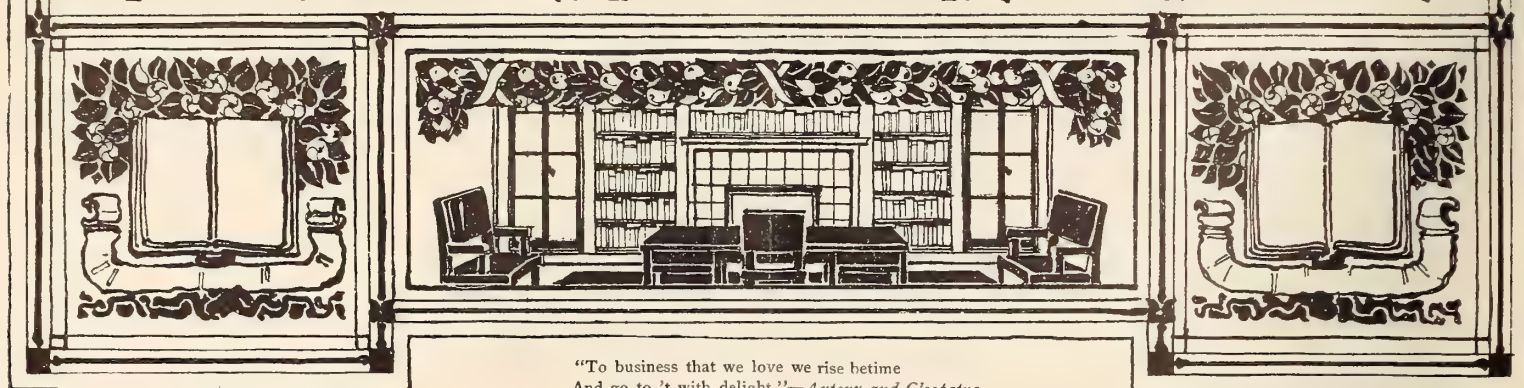
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THE TALK OF THE OFFICE



"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

THE GARDEN MAGAZINE IS GROWING UP

BEING now eighteen months old this magazine proposes to celebrate by adding to itself a cover printed in colors beginning with the September number. Perhaps no monthly published ever had such beautiful material for covers as THE GARDEN MAGAZINE. Flower cover designs represented in black and white reproductions are dull and lifeless when compared with the color photographs which it is now possible to make. A further advantage will be the protection to the magazine itself.

A PLAGUE OF BAD PAPER

Early in June we had the misfortune to hit upon a bad lot of coated paper. The highly polished surface of the paper used for THE GARDEN MAGAZINE is secured by sizing the stock before the French clay is applied, and running it between great roller calenders, producing the perfectly smooth finish upon which cuts can be printed that contain 175 lines to the square inch. Unhappily this sizing went wrong in the hot weather, producing a perfume offensive to many readers, who wrote us complaining. To all these we replied explaining that the trouble was by no means a permanent one; but the people who did not write are the ones we are disturbed about. We regret this ancient and fishlike odor, and hope it is gone forever. We discovered the bad stock and saved part of the edition before it was too late, and we only mention the matter now to let our readers know that the best paper we can get goes into all of our magazines, and no stone is left unturned—if we know it—to increase their good qualities.

ATTRACTIVE BARNs

Country Life in America is anxious to get photographs of attractive barns. If any reader of THE GARDEN MAGAZINE has a new or an old barn which has any practical advantages, is suggestive and good to look upon, the editors of *Country Life in America* will be glad to have the interesting facts and photo-

graphs, and will gladly pay for the readers' trouble in sending such material.

WILL AN AUSTRALIAN NOVEL SUCCEED? THE "TRADE" SAYS NO; WE SAY YES

Six or seven years ago there came to us the manuscript of a book which was published under the title of "Bob, Son of Battle." This strong and worthy novel had no sale whatever for some time, and to this day it has never come to its own in England, though more than 100,000 copies have been sold in America; but we were fortunate enough to hit upon a plan which called people's attention to the book and helped it to a large success; and since that time it has been more and more popular, until we have published some fifteen editions, worn out the plates, and reset it for still future editions.

We have now come upon another book which is quite as remarkable and as fine in its way as "Bob, Son of Battle" was. The author is "G. B. Lancaster"; the book, called "The Spur", is written as very few people know how to write. It is the story of a young man who agreed to follow absolutely the dictates of another and older man in return for financial help to let him work out his literary ambitions. From the "trade" point of view there is one singular drawback: the scene of the book is laid in Australia and New Zealand, and has a sheep ranch for background. Books about Australia are supposed never to sell, but we mean to keep the story of Kin Severne, the dominating character of "The Spur," before readers until they at least have had a chance to decide whether we are right as to its merits. We know that they will care for it—if not now, later. Some books are sure to find their way—"The Spur" is such a book.

THE AUGUST FIRST BOOK

Three years ago we decided to try an experiment in publishing novels on what was accepted as an out-of-season date. The first experiment was made in mid-summer. The book then issued on August 1st, instead

of falling flat in a dull season, secured a good deal more attention than it could possibly have secured at any other time. Since then we have always published an important novel in August, and this year's book will be by Miss Michelson, author of "In the Bishop's Carriage" which has been read by tens of thousands. The title of Miss Michelson's novel is "Anthony Overman." The charm of the story is most difficult to describe, but the record of the experiences of a strong man with the courage of his convictions in love as well as in the daily walks of life must always be interesting as long as men strive toward an ideal. The story of Anthony Overman and Jessie Incell is more than interesting; it is absorbing—a hard novel to lay down for dinner or sleep.

FLASHLIGHTS IN THE JUNGLE

Mr. Schillings' remarkable book of photographs and hunting experiences in Africa has been out of print for some months. The book was printed for us in London from the original plates. Our first edition was at once taken up, and we have tried the patience of our friends in taking so long to get a second. However, all orders are now filled, and copies are in hand.

BOOKS THAT ARE LATE

Our readers may remember that we had a printers' strike on January 1st. This extended to the electrotypers and all of our spring books were delayed. It has been a hard fight for the open shop but now we are fully equipped and almost caught up again.

"The Dog Book" has had a host of troubles, bad electros, and delays beyond endurance, but it is finally all in type, and we expect to have it complete August 1st. Ten parts, or in two splendid volumes.

"The Frog Book" should have been ready by May 1st, but after every conceivable kind of delay it was practically finished on June 1st when some twenty or thirty pages of text were lost, strayed, or stolen, and had to be reset. This book will be ready also, we hope, by August 1st.

CONTENTS

AUGUST, 1906

	PAGE		PAGE
THE GARDENER'S REMINDER - - - - -	9	BULBS FOR AUGUST PLANTING - - - Thomas McAdam	27
THE HUMBLE CURRANT AND GOOSEBERRY - S. W. Fletcher	10	Photographs by N. R. Graves, Henry Troth, and others	
THE CULTIVATION OF HARDY ORCHIDS - Wilhelm Miller	13	FLOWER SEEDS FOR SUMMER SOWING - - - W. Clark	30
Photographs by A. R. Dugmore, Verne Morton, and others		Photographs by N. R. Graves and H. Troth	
A PLANTING PLAN FOR A DEEP-BAYED BORDER I. G. Tabor	16	A CULTURAL GUIDE TO HARDY ORCHIDS - Wilhelm Miller	38
Sketches by the author		FEW BUGS IN CLEAN GARDENS - - - E. D. Sanderson	40
THE TEN BEST HARDY CONIFERS - - - J. W. Duncan	17	Photograph by the author	
Photographs by W. Fischer and N. R. Graves		GARDEN PUBLICATIONS - - - - -	42
THE REAL THING IN GREENHOUSE CONSTRUCTION - - - Leonard Barron	20	PLANT EVERGREENS IN AUGUST - - - P. M.	44
Photographs by N. R. Graves, G. F. Morgan, and others		THE CALIFORNIAN'S REMINDER - - - Ernest Brauntun	46
THE JOYS OF A "COOL GREENHOUSE" - P. T. Barnes	23	PLANT POT-GROWN STRAWBERRIES IN AUGUST - T. B.	46
Photographs by N. R. Graves, Vermont Experiment Station, and others			

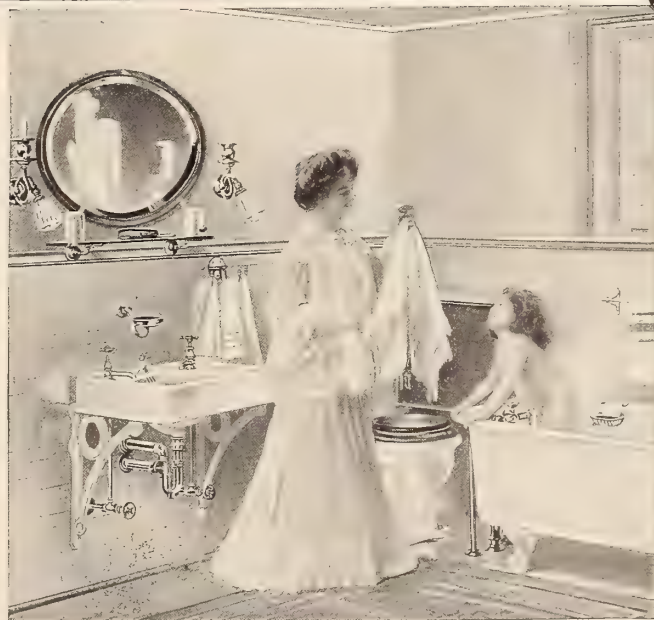
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....	Formosa. Pretty convex flower; sulphur white, stigmatae lively red; very beautiful variety.....	35	3 50
....	Grandiflora nivea. Very large, pure white flower, shaded with sulphur, lovely rose and salmon with some stains of carmine; a variety of perfect loveliness.....	2 00	

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....	Cyclops. Purple-crimson. First-class Certificate, R. B. S.....	1	00
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....	Venus. Flesh-pink, with shades of salmon; most delicate; a beautiful colored plate of this variety has appeared in <i>The Garden</i>	3	00

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The Garden Magazine

VOL. IV—No. 1
PUBLISHED MONTHLY

AUGUST, 1906

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Opportunities that Beginners Miss

THE beginner is off his guard in August. With the garden yielding its full harvest, the idea of planting anything never enters his mind. Yet there are fourteen kinds of vegetables worth sowing in August. To be sure, four of them are mere "stunts," but the others are important food items.

The beginner can save a year on strawberries by buying potted strawberry plants in August. They may cost ten cents each but they are worth it for if you set out ordinary strawberry plants this fall, they will not fruit until 1908, while potted plants will give you berries next spring. (The leading seedsmen and nurserymen now issue "midsummer price-lists" of strawberries and celery. Have you ever seen one?)

Most beginners are afraid to plant celery. They think it is too special or too—something. Now is your chance to repair this mistake. Buy celery plants. They have been twice transplanted and prepared for shipment by express at this dramatic moment.

We shall never forget our first experience with celery. (Perhaps we had beginner's luck.) But what a delicious vegetable! Try it. You can't do worse than fail.

GETTING OUT OF THE "AUGUST RUT"

Every item on this page represents a good thing worth doing that is ordinarily forgotten. Nearly every one can be done only in August. The time to get ahead of your neighbors is when they are off guard. Only wide-awake people read this page—and they mostly fall asleep during its perusal.

Do you know why you see so few white lilies in the gardens of this country? It is because the best one has to be planted in August. (Unlike other lilies, it has to make a leaf growth this fall.) Few know it. Most who do forget it.

Do you know that lovely flower, the Spanish iris or "poor man's orchid"? Same reason.

Then there is the wonderful giant lily with spikes four feet long!

Six other bulbous flowers like these are

mentioned on page 27. And what a goodly company they are!

SAVING MONEY IN AUGUST

We are ashamed to confess that we never heard of Wapanucka, Indian Territory, but we are grateful to a subscriber there for asking this pertinent question:

"Will you not publish ways and means for poor people who have to stint themselves to buy plants? This is the shortcoming of the high class periodical literature."

The time-honored way to save money in gardening is to raise plants from seed. It takes longer, but it's more fun. A packet of seed costs a nickel and you can often raise a hundred plants from it. One good perennial packed and labelled ought to cost fifteen cents and often does cost a quarter—plus express. And how those quarters count up!

Do you realize that August is the time to raise perennials from seed? Now is the appointed time to sow all those precious old-fashioned flowers that are full of sentiment and home associations. And the best place to sow them is in a coldframe because you can keep heavy rains from washing away the little seeds and seedlings. Think of foxgloves, larkspurs, Canterbury bells, and all the well-beloved host!

We hope our friend in Indian Territory will find what she wants in Mr. Clark's article this month. If not, let her speak up and she shall have her wants satisfied, if it is a possible thing.

PREPARE NOW FOR CHRISTMAS

Some of the most precious flowers of the holiday season are the ones that have to be started in August. You must order your Bermuda lilies and freesias in August if you want their chaste, fragrant blossoms in time for the family reunion on Christmas day.

ARE YOUR HOUSE PLANTS SATISFACTORY?

Is it too much trouble to raise flowers in the house?

Do you have those yellow, leggy, lop-sided plants that bend so appealingly toward the light—of which they never get enough?

Those pallid scarecrows, according to a learned German physiologist, (Sorauer), are suffering from alcoholism! The soggy roots actually develop alcohol.

Did it ever occur to you that you might own a little greenhouse or conservatory that would cut out all this trouble and that instead of continually apologizing for the condition of your plants, you might have something in which you could take pride, as well as solid comfort, every day?

We once heard the great peach king, Mr. J. H. Hale, utter a pathetic remark about

greenhouses. He was visiting a college professor who managed to squeeze out of his small salary enough to run a little greenhouse. It was in the dead of winter and the snow and wind were raging outside. As he "sized up" the snug little outfit, he fetched a long sigh and said, "Gee! Professor, I'd be willing to give two or three of my orchards for something like this."

But Mr. Hale will never get it. He is in the August rut. He forgets to inquire at the proper time. He will not have his building up before snow flies. His family will have no flowers of their own raising for Christmas. And he will go through life nursing the delusion that a greenhouse is beyond his means.

Is it? No more so than a trip to Europe! And both are good to read about.

PLANT EVERGREENS THIS AUGUST

Not one word of complaint has reached us from the readers whom we advised last year to plant evergreens in August. If you plant your conifers in August you avoid the spring rush and the danger of delayed shipments. August is better than September because the evergreens have a longer time in which to get settled before winter comes. Many advanced horticulturists now believe that more evergreens are ruined by summer drought than by winter cold and therefore the August planting of evergreens gains converts every year. But remember that August evergreens must have a perfect ball of roots protected by burlap or other covering.

VEGETABLES FOR AUGUST SOWING

Sow New Zealand spinach once a week during August. It is the hot weather substitute for common spinach.

The only reliable lettuce for the dog days is Black-seeded Simpson.

Sow Early Valentine beans twice during August. They mature in forty-five days.

Mustard is a pot-herb the young leaves of which are ready to cook twenty days after seed sowing.

Did you ever have any vegetables in March from your garden? Try corn salad and Welsh onion. Sow the seeds in August and cover the corn salad in winter with litter.

Salsify sown in August and left undisturbed till spring will be twice ordinary size.

Tuberous chervil has turnip-like roots which are boiled or eaten in stews. Sow seeds in August as seeds kept dry over winter sprout poorly, if at all.

Sow Nott's Excelsior or American Wonder peas August 1st for September use.

Last chance to sow Country Gentleman sweet corn or whatever is your favorite variety. After August 1st, the only chance is an early variety like Cory.

The Humble Currant and Gooseberry—By S. W. Fletcher

Michigan Agricultural College

EVEN HERE THERE ARE QUALITY VARIETIES—LARGER BUNCHES AND MORE OF THEM PRODUCED BY A SYSTEM OF PRUNING THAT ANYONE CAN MASTER—ENGLISH GOOSEBERRIES THAT ARE ALMOST AS LARGE AS PLUMS

THE peculiar merit of currants and gooseberries is their reliability. They occupy an humble place in the fruit garden, but we could ill afford to spare them from it, not only because of the excellent jellies, jams and sauces they make, but also because they have the cheerful habit of yielding a crop of fruit every year. They are the hardiest of our common fruits, and very easy to protect, if planted in a trying climate. Moreover, these two fruits take up less space, in proportion to the amount of fruit produced, than most other small fruits. They are easily grown, reliable, and compact; these three points commend currants and gooseberries for the garden, especially the suburban garden where space may be limited and conditions not ideal.

In America the currant is much more popular than the gooseberry; the reverse is true in England. English gardeners have developed many hundred of varieties of gooseberries, some of them bearing fruits of immense size and weight, occasionally even three to five ounces. But their gooseberries are grown very largely for dessert use; they are allowed to ripen on the bushes and are eaten out of hand. In this country very few gooseberries are eaten except in jelly, jam, sauce or canned; for these purposes they are picked while still very green. Probably this is partly because the common American varieties are not nearly as good to eat out of hand as the best English sorts. The English varieties are successful here in only a few localities; they need more moisture and coolness than our summers afford. Nevertheless, it is to be regretted that Americans do not look with greater favor upon ripe gooseberries as a dessert fruit and endeavor to breed American varieties of high quality.

COOLNESS AND MOISTURE NEEDED

Both these fruits love coolness and moisture; hence they do not thrive in a hot, dry climate, either in the South or inland. Currants and gooseberries can be grown on the higher altitudes of most parts of the South, but are worthless in the lowlands. Like the



Prince Albert currant. A very productive variety, and largely grown for canning



A standard grown currant. The bush form is usually preferred in America, because the borers are then less injurious. La Versailles, one of the best red varieties, large and productive

brambles, they prefer a northern slope. In a small garden a northern site may be made to order by planting them on the north side of a building. Shade is beneficial to them because it cools; it is therefore common to plant currants and gooseberries between rows of fruit trees; a practice good for the small fruits, but apt to be hard on the tree fruits, unless they are given intensive culture. In a closely planted city or suburban garden currants and gooseberries do better than the other fruits, especially if the canes are kept well thinned to prevent disease.

Currants are less imperative about their surroundings than gooseberries; the latter much prefer a rich bottom soil and are quite at home on fairly stiff clay, but are impatient of the lighter soils on which currants will get along fairly well. While strong loams are preferred, almost any soil, even a light, sandy loam, will grow currants and gooseberries worth the trouble, but such soils should be built up with rotted manure before and after planting. Humus is nearly as essential to

success in growing currants and gooseberries as in growing raspberries and blackberries; for much humus in the soil, especially if from manure, furnishes the richness, coolness and moisture in which these fruits delight.

PLANTING

Except in the northernmost localities, fall planting is better than spring planting. The spring planting is apt to be delayed and the conditions for growth are most favorable in early spring. At any time between September first and frost, planting may be done. The plants should be one or two years old, the latter being preferred, if not undersized. Fall set plants should be heavily mulched. If planting is delayed until spring, let it be done very early. The distances for setting commonly recommended vary from 4 x 4 ft. to 6 x 4 ft. for red and white currants and gooseberries. Black currants, being larger, are set one-half farther apart.

MULCHING OFTEN SATISFACTORY

The plants may be tilled or mulched. In a majority of fruit gardens tillage is probably preferable, since other parts of the fruit garden must be tilled. But both currants and gooseberries thrive well under a mulch of straw, manure, or even of ashes three or four inches deep. In the dryer parts of the Middle West, mulching gives better results than tillage. The mulching should begin at planting time, by putting several forkfuls of manure around each plant. As the plant grows the mulched area is widened, and new material is applied each year. In some cases it may be best to mulch beneath the plants and till between the rows. Because they lend themselves so readily to the mulch system, currants and gooseberries are well adapted for planting on the borders of the fruit garden, where tillage cannot be given. Tillage, if practised, should be shallow, and should be stopped about the same time as the tillage of other small fruits.

THE PRUNING THAT GIVES LARGE BUNCHES

Little pruning or training is needed the first summer, except to pinch back shoots that outstrip the others. If the plants are



Lancashire Lad; a popular English gooseberry freer from mildew than most English varieties

to be trained in tree form, with but one stem, all suckers should be rubbed off; but this is not usually desirable except for extra choice fruit. The bush form, with several stems, is preferable. It gives more fruit than the tree form and there is less danger of the plant being killed by borers. At the close of the first, second, and third seasons no pruning is necessary except to thin out weak or crowding shoots and to head back shoots growing out of bounds. The third year the plants should bear a fair crop. By the end of the fourth year some of the oldest wood may need to be removed.

The vital point in pruning currants and gooseberries is to secure and to preserve every year a number of vigorous young shoots from the roots, and to cut out every year some of the oldest wood. Many backyard currant bushes produce very small bunches of inferior quality, not because they are underfed, but because they are full of black, gnarly branches, which are too old and too weak to develop strong fruit buds. The largest bunches and largest currants are borne at the base of one-year-old shoots, or on short one-year-old spurs; the best gooseberries are borne on two- and three-year-old wood. Therefore, to get the highest quality of both fruits, it is necessary to keep up a continuous supply of vigorous shoots. Cut out the oldest branches the fourth year and each year thereafter, leaving no wood over three years old. Leave from six to twelve of the strongest shoots of the past season's growth, and cut out all spindling shoots. Very long shoots may be headed back. Branches that lie upon the ground should be removed, as these never bear the best fruit. Try to distribute the shoots regularly over the plant; cut out crowding branches, as in tree pruning. Do not hesitate to cut out half the bush if that is necessary to rid it of devitalized old wood and of weak young wood. The common mistake in pruning currants and gooseberries is to let the bushes stay too thick. Pruning may be done in the fall or in early spring, before the buds break. Cut out borer-infested shoots when pruning.

LITTLE FERTILIZING NEEDED

Aside from the annual mulching with rotted manure no fertilizer is needed in most fruit gardens. This mulch should be spread around the bushes in the fall and worked into the soil in the spring, unless the plants are to be mulched continuously. On rich but moist soils, however, manuring can be overdone. Currants, especially, are liable to make wood growth at the expense of fruit bearing if stimulated too highly with manure. A potash fertilizer, as unleached wood ashes, often greatly improves the quality of currants and gooseberries grown on strong soils.

THE HARVEST

A strong currant plant should yield from two or five pounds of high grade fruit. Gooseberries usually outyield currants. Currants should be picked when dry. One of the satisfactory things about both is that the fruit can remain on the bushes for a long time without seriously injuring their culinary



Six good currants for the home garden. From left to right the bunches are London Red, London Market, White Grape, Transparent, Pomona and Moore's Select. The white varieties are slightly superior in table quality to the red sorts

or dessert value. Currants may hang for several weeks after quite ripe, gaining in quality all the time. Pick them by pinching off the branches, do not pull off the berries. The thorns of gooseberries are bothersome to the picker if he tries to reach in for the berries, but if he lifts up a branch with one hand and picks the berries, which are mostly on the lower side of the branch, with the other hand, he will avoid scratches. The thornless varieties have not yet proved to be of special value.

VARIETIES FOR HOME USE

The most popular varieties of red currants are Victoria, Cherry, Versailles and Fay. The Prince Albert is often grown for a late sort. The Wilder is perhaps the best of the newer varieties. The white varieties should be grown in the fruit garden more than at present, because they are somewhat better in quality than the red sorts, and equally productive. White Grape and White Imperial

are reliable. The European black sorts are very seldom grown in America; the odor of the plant and the flavor of the fruit are very disagreeable to most people. But this disagreeable odor and flavor can be removed from the fruit by scalding and it then makes a jam which is preferred to red currant jam by many. Macerated black currants put into cold water make a delicious and refreshing summer drink. Because of these advantages and also because they are not attacked by currant worms, there should be at least a few bushes of black currants in the fruit garden. Black Naples is grown the most.

The most popular gooseberries in America are Downing, Houghton and Pale Red, all varieties of our native gooseberry. The plants are very thrifty, productive and free from disease. The fruit is unexcelled for pie, jam, sauce and jelly; and while not equal to most of the English sorts for eating out of hand, some people consider them good enough. Improved dessert varieties of our



Downing gooseberry. A popular American variety of exceptional merit. Easy to grow, and does not mildew



A six year old cherry currant bush before pruning. It is not in bad condition, but needs thinning. The chief point in pruning is to remove all branches over three years old

native gooseberries are being developed by crossing with the European sorts and by selection from the natives. Some of the best of the English sorts, of which there are over a thousand, for American fruit gardens are Chautauqua, Columbus, Industry, Triumph. The English sorts are less vigorous and productive than the natives and are apt to mildew badly, but their large size and high quality commend them to us.

REPLANTING

Currants and gooseberries will live and bear good fruit for many years, but it is better to set out new plants on a new site every eight to twelve years. The bushes

become crowded and harder to manage as they get older, and the fruit is apt to deteriorate in size. The plants cost so little and come into bearing so quickly that it is doubtful if it is wise to keep even the best of plants longer than twelve years or to attempt to rejuvenate neglected plants over eight years old.

THE COMMON TROUBLES

Currants and gooseberries have few troubles. None of these mentioned here are serious if the remedies are applied in season.

Gooseberry mildew. This is the most troublesome disease of gooseberries. It attacks the English varieties especially, being much more serious in those sections of our

country having a hot, dry climate, particularly in the interior, than in the more humid climate of England. The native varieties are not immune to it, but seldom are seriously injured. It appears as a cobweb-like patch on the young leaves and on the ends of young shoots, killing or checking them. The young fruits are also attacked, and are made unfit to eat. The whole plant may be seriously checked or even killed by successive attacks.

Varieties differ somewhat in their susceptibility to the disease, but none are immune. Spray with potassium sulphide, at the rate of one ounce to two gallons of water. Make the first spraying as the leaves unfold and repeat from three to five times as needed. Bordeaux is almost equally effective for the early sprayings, but it stains the fruit if used after the berries are half grown. Much can be done to prevent the disease by good culture and by keeping the shoots from crowding.

Anthracnose or leaf spot is a fungous disease that makes small brown spots in the leaves, which often are so numerous as to cause the leaves to turn yellow and drop. It attacks both currants and gooseberries. By the middle of August, and sometimes before the fruit is ripe, the plant may be completely defoliated. This not only prevents the complete ripening of the fruit then on the plants but also reduces the crop of next year, since the fruit buds are not well developed. A second growth of foliage may appear. The preventive—Bordeaux applied as the leaves appear and again two weeks later and once more after the fruit is harvested—is simple and very effective.

Currant worm. A small fly, about the size of a house fly, lays eggs on the under side of the leaves. The worms are at first white, later green, with black spots, and finally green, tinged with yellow. They appear at various times throughout the season, and when full grown are about three-quarters of an inch long. There are usually two broods. All the leaves may be eaten from a plant in two or three days, so currant and gooseberry bushes must be examined frequently, especially the lower leaves, which the worms are likely to attack first. Spray with a poison as soon as worms are seen, or put the poison into the Bordeaux when spraying for mildew and leaf spot. After the fruit is half grown use white powdered hellebore at the rate of one-half ounce to a gallon of water. This is equally effective earlier in the season.

Currant borer. In early summer a blue, wasp-like moth lays eggs near the tip of a shoot. The white worms hatching from these burrow down the centre of the shoots. Infested shoots look sickly. The treatment is to cut out and burn the infested shoots when pruning in early spring. Do not allow very old canes to remain on the plant.

San Jose's scale is very partial to currants and it is not averse to gooseberries. It is quite easily kept in check or exterminated on both these fruits, because they can be sprayed so easily and thoroughly. The lime-sulphur spray applied in early spring is preferred.



After pruning. The branches that lie on the ground (old canes and weak shoots) have been removed, and the top has been thinned. The old wood will never bear again

The Cultivation of Hardy Orchids—By Wilhelm Miller New Jersey

AN ATTEMPT TO PUT OUR IGNORANCE OF THE SUBJECT INTO SHAPE FOR DEFINITE EXPERIMENT BY AMATEURS WHO ARE WILLING TO BUY THE PLANTS INSTEAD OF ROBBING NATURE

NO ONE really knows how to grow hardy orchids. There are sixty species in the northeastern United States and not one of them will ever become a common garden plant. Most of them are too small, and all require special conditions. Hundreds of people can make them live for a year or two. A few people have colonies of a dozen plants that have flowered regularly for five or six years. No one seems to have naturalized them on a large scale.

Unless we can supply those special conditions it is worse than folly to transplant orchids from the woods. It is vandalism. The orchids are the shyest of our woodland treasures and the most in danger of extermination. Even if you buy them from a nurseryman your conscience is not clear, unless you want them for serious experiment. Practically all of the hardy orchids sold are collected from the wild. A few are slowly propagated in the nursery. Some are grown on from the seedling stage to flowering size, the seedlings being gathered from the wild. None of them are grown from seed. Any one who will find a practical way of growing hardy orchids from seed or any other method of propagating them with a reasonable degree of rapidity and cheapness will be doing a great service to his fellows and himself. Perhaps it might be done in five years at a cost of \$100 or less. But the important thing is to establish a large colony.

THE THREE CULTURAL GROUPS

We find orchids growing wild in three radically different situations—in woods, swamps and sphagnum bogs. No one has a right to say that any given species will grow only in woods, or that it demands wet feet, or will not grow without sphagnum. However, the important practical question in every case is, "which one of the three situations does the plant we want seem to prefer."

THE TWO KINDS OF BOG

A common swamp is full of nitrogen and



Fig. 1. The best hardy yellow orchids, the large yellow lady's slipper (*Cypripedium pubescens*). It has a pale yellow lip. A cultivated group

of the organisms of decay; a sphagnum bog is poor in nitrogen and contains no bacteria. That is why sunken logs are preserved for centuries in peat bogs, and that is why certain orchids, heaths and insectivorous plants inhabit sphagnum bogs. The pitcher plants and sundews have to catch insects in order to get enough protein. The others



Fig. 2. The showy orchid (*Orchis spectabilis*) a pinkish purple flower found in the heart of rich woods. Every line of it spells "orchid"

are supposed to be able to get along with very little nitrogen.

The species that are supposed to prefer sphagnum as well as wet feet are the grass pink, the Arethusa and the rose pogonia. The Calypso grows in sphagnum bogs, but in shaded parts, where the moss cannot live.

The species supposed to prefer wet feet, merely, are the yellow-fringed orchis, the smaller purple-fringed orchis, and the ladies' tresses.

The chances are that it will pay to use sphagnum in cultivating all the above named species whether they grow wild in sphagnum bogs or not. You can buy this moss from florists, nurserymen or seedsmen.

None of the above species is known to demand either sun or shade, but if you intend to grow them in the open you must be sure that there is a foot of wet mud beneath them all the time. Probably all of them will thrive in partial shade also. For example, "I have seen thousands of the smaller purple-fringed orchis in full sun," writes one observer, "yet the finest specimens I have found were in partial shade."

THE WOODS-LOVING SPECIES

Fortunately, all the other orchids, so far as we know, are satisfied with partial shade and a reasonable degree of moisture. Good garden soil is moist enough (except in time of drought), and every garden can supply some

kind of shade. We may presume that the ideal is to reproduce the cool moist atmosphere of the woods, the abundance of diffused light, the free circulation of air without drying winds, protection from the fierce midday sun and above all a mellow, spongy soil full of leaf mold.

Woods-loving orchids should never have stagnant moisture. If your soil is heavy, throw out two feet of it, put in stones at the bottom for drainage and fill in with woods-earth. Then you can give them plenty of water in summer without fear of overdoing it. They want less moisture when the foliage is ripening and they must not be damp in winter. Cover them lightly with leaves or litter in November, but do not use manure. A loose summer mulch is desirable in order to prevent excessive evaporation.

THE NINE BEST SPECIES

"Which are the six best hardy orchids?" I asked the four specialists who have doubtless sold nine-tenths of all the native orchids in cultivation. Here is the result:

Showy lady's slipper.....	4 votes
Large yellow lady's slipper.....	4 votes
Rattlesnake plantain.....	4 votes
Small white lady's slipper.....	3 votes
Small yellow lady's slipper.....	2 votes
Large purple-fringed orchis.....	2 votes
Yellow-fringed orchis.....	2 votes
Showy orchis.....	2 votes
Grass pink.....	1 vote

THE BEST PINK LADY'S SLIPPER

Everyone is agreed that by far the loveliest of all hardy orchids is the showy lady's slipper (*Cypripedium spectabile*). See Fig. 5. It may not have the largest flower, as is often said, for the slipper or "lip" is not ordinarily much more than an inch long, while that of the moccasin flower is sometimes two and a half inches. Its airy grace is due partly to its shape—for it is rounder, more symmetrical, more inflated than its rival—and partly to its white petals and sepals. The lip of



Fig. 3. The Rocky Mountain white lady's slipper growing in nursery rows (*Cypripedium montanum*). It is prettier than the Eastern species, fragrant, and survives the winters of Vermont if mulched



Fig. 4. The moccasin flower (*Cypripedium acaule*) is the largest orchid of all (flowers sometimes two and a half inches long) but no one seems to have had permanent success with it

the showy lady's slipper varies from white and blush to rosy purple, but it is typically white, veined with pink.

This is the species that the millionaires want to naturalize by the thousands in their woods and it is to be hoped that they will succeed. Luckily it is one of the easiest to grow. It does particularly well in rhododendron beds. A small plant that will flower the first year costs about thirty cents. It blooms in June, and bears from one to four flowers on a stalk. Although one specialist assures me that he has never seen it except in sphagnum I am positive that it will grow in ordinary woods.

The moccasin flower (*Cypripedium acaule*) is inferior to the showy lady's slipper in everything save size of blossom. Fig. 4



Fig. 5. The best hardy orchid in the world, and fortunately one of the easiest to grow—the showy lady's slipper (*Cypripedium spectabile*). Flowers pink, veined purple, with white petals and sepals

shows the depression in the upper part of the lip which makes it look like a moccasin. The lip is pink, with darker veins and the sepals are greenish purple. It blooms toward the end of May and has only one flower. The name *acaule* meaning "stemless," confuses beginners. The flower does have a stalk, but it comes straight from the root and bears no leaves as a true stem does. This plant has only two leaves and they lie on the ground. Here again the superiority of the showy lady's slipper is manifest for its stem is clothed with singularly beautiful foliage.

Why no one has made a permanent success with the moccasin flower is a mystery. Try it in a well-drained rock fissure or surround it with pine needles.

THE BEST YELLOW LADY'S SLIPPERS

The large yellow lady's slipper (*Cypripedium pubescens*) is one of the three best hardy orchids. See Fig. 1. It has a pale yellow lip $1\frac{1}{4}$ to 2 inches long, while that of the smaller species is only $\frac{1}{2}$ to $1\frac{1}{4}$ inches.

The small yellow lady's slipper (*C. parviflorum*) almost atones for its shorter lip by its fragrance and brighter color. See Fig. 4. Miss Niles considers it the only fragrant lady's slipper of the Atlantic coast.

The beauty of both these species is greatly enhanced by the brown sepals and petals, especially the latter, which, though narrower than the sepals, are long, pendant and undulating. See Fig. 6. Both are woods-orchids, but are also found in bogs, and sometimes even in sphagnum.

THE BEST WHITE LADY'S SLIPPERS

The Eastern white lady's slipper (*C. candidum*) is not quite as beautiful as the Rocky Mountain species, but it is hardier and is supposed to be the most permanent of all lady's slippers and the most easily adapted to various conditions.

The Rocky Mountain white lady's slipper (*C. montanum*) has a lip an inch long, which is slightly longer than those of the Eastern species. See Fig. 5. The sepals and petals are a good rich brown, while those of the Eastern species are not particularly attractive, being greenish. This species survives the winter of Vermont provided it is mulched. Both the white-flowered species are woods-orchids.

OTHER TYPES OF ORCHID

The other types of orchid are too complicated for vivid description but most of the important ones are pictured herewith. Anyone who intends to study hardy orchids should have "Our Native Orchids" by William Hamilton Gibson and "Bog Trotting with Orchids" by Grace Greylock Niles. The former depicts every species; the latter is rich in colored plates.

The rattlesnake plantain (*Goodyera pubescens*) is one of the most desirable hardy orchids in spite of its repellent name, and inconspicuous greenish white flowers. Fig. 9 shows what is probably the largest colony on record. This patch was about fourteen feet long, two to four feet wide, contained

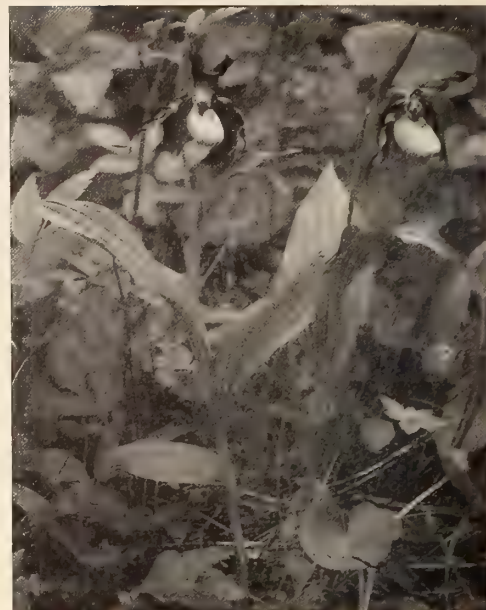


Fig. 6. The small yellow lady's slipper (*Cypripedium parviflorum*) almost atones for its smaller size by its fragrance and brighter color. Perhaps the only Eastern lady's slipper that has a marked fragrance

hundreds of plants and carpeted the forest floor at Eagle's Mere, Pa., to the exclusion of everything else. It is impossible not to thrill at the first sight of the mosaic leaves that proclaim this orchid. These leaves are all at the base of the plant, five to ten of them in a rosette and beautifully netted with white and green. I suspect that these leaves are not shed in winter. Certainly they are attractive for nine months in the year. The preferred habitat is coniferous woods, and in cultivating the species it is best to surround the plants with pine needles and even mix them with the soil for that seems to prevent the leaves from damping off, which they have been known to do even in hot weather. Why this dainty flower should be compared to a coarse weed like the plantain,



Fig. 7. *Habenaria oriculata*, showing the characteristic inflorescence of the genus *Habenaria* which has over 400 species. One of the numerous greenish white kinds, which are not sufficiently showy for cultivation

I can't imagine. The "rattlesnake" part of the name is clear enough for the Indians considered this plant a cure for snake bites. *G. repens* is smaller, but showier.

The showy orchid (*Orchis spectabilis*) is another little aristocrat whose every line spells "orchid" to anyone who comes upon the flower for the first time in the rich woods it haunts. See Fig. 2. Whenever you see on the ground two large fleshy leaves with parallel venation, you may suspect the presence of an orchid treasure. This species has a stem about six inches high, bearing three or four inch-long flowers of purple, pale purple and white.

The great genus *Habenaria* contains 400 species, of which eighteen are native to the northeastern United States. Eight of these will never amount to anything in cultivation because they have greenish flowers, nor does anyone show much enthusiasm over the four white flowered species. The best kinds are to be sought among the three yellow and the three purple species. Of the former the yellow-fringed orchis (*Habenaria ciliaris*) is the showiest. It grows about two feet high and bears about ten inch-long yellow flowers on a spike six inches long. It grows in meadows all the way from Ontario to Florida, and rejoices in wet feet and sunshine, though it has been cultivated in soil that is merely moist.

Of the purple *Habenarias*, the best is the large purple-fringed orchid (*H. fimbriata*). This glorious species has been known to attain a height of five feet, with racemes fifteen inches long, two and a half inches wide and densely packed with lilac or purplish flowers. It blooms in June. The peculiar beauty of this orchid is its broad three-parted lip, which is about half an inch long, and particularly its copious fringe, in which respect it surpasses all other native orchids. Although a native of rich woods and meadows, the safe thing would be to supply it with wet feet, sphagnum and partial shade.

The smaller purple-fringed orchis (*Habenaria psycodes*) is less desirable as the racemes are only two to six inches long, and the fringe is shorter. However, a meadow containing thousands of them is such a lovely sight in July or August that it hurts one to see a farmer drain such a spot and add it to his arable land. Whenever you hear of an approaching catastrophe like this, you would do a favor by writing to THE GARDEN MAGAZINE. Perhaps we can prevent it.

The fringed purple orchid (*H. peramæna*) has received high praise because its flowers are larger, though they lack beautiful fringe. The lip is three-quarters of an inch long and violet-purple, darker than the two preceding species. It blooms in midsummer in moist meadows.

The charming little white orchid shown on the cover of this number is known as ladies' tresses (*Spiranthes cernua*). We have seven species in this genus. Four of them have the spiral arrangement of flowers that is the distinctive beauty of these orchids and which has given them their generic name. The species with nodding flowers generally grows about eight inches high, with a spike four to six inches long. It is one of those fall-blooming species that always seem to be out of season, for it has the exquisite delicacy of a spring flower. I know a wet sunny meadow where it grows by the hundred along with fringed gentians—"and I didn't tell you where." It has been successfully cultivated both in sun and shade, in wet soil, and in soil that was merely moist.

FOUR SPHAGNUM-LOVING PINK ORCHIDS

The Calypso is a lovely, rare orchid that resembles a small lady's slipper but the lip does not make a perfect shoe. The plant is only six inches high, blooms in June, has only one leaf, bears a solitary flower and comes from a bulb about half an inch thick. It also has coral-like roots something like those of the putty root orchid. These peculiar roots are supposed to be associated with a



Fig. 8. One of the four bulbous, pinkish-flowered species that delight in sunny sphagnum bogs. The grass pink (*Calopogon pulchellus*). Fls. 1 in. across

saprophytic condition and no saprophyte (a plant that lives on decaying vegetable matter) of importance except the mushroom, has ever been successfully cultivated.

Arethusa is another bog-loving bulbous species with solitary rosy purple flowers an inch long and sometimes two inches. Its distinctive feature is its big gaping mouth. This species and the next are believed to be more nearly confined to sphagnum bogs than any other species.

Everything that has been said of *Arethusa* applies to the *Pogonia* (*P. ophioglossoides*) except that the flower is only half an inch long, pale rose, and distinguished by a short fringed lip instead of a gaping mouth.

The grass pink (*Calopogon pulchellus*) grows about a foot high and has several purplish pink flowers about an inch across. See Fig. 8. While it is supposed to prefer sphagnum bogs, it also grows wild in meadows and even in sand, and it has been successfully cultivated on garden soil. Nevertheless, the safe thing is to give it wet feet full sun and sphagnum.

THE LESS SHOWY ORCHIDS

I have examined into the horticultural merits of all the other hardy native orchids and believe that they are too small and inconspicuous ever to have any garden value, but if I am mistaken I shall be glad to be corrected. As a matter of record I will say that the following species are catalogued by reliable nurserymen, (as are also all the species mentioned above); *Aplectrum hyemale*, *Goodyera Menziesii*, *Habenaria orbiculata*, *Liparis liliifolia*, L. *Loeselii*, and *Tipularia discolor*. We shall be glad to hear from anyone who would like to take up orchid culture seriously. We have some notes by excellent observers which we shall be glad to turn over to someone who will carry on the subject.

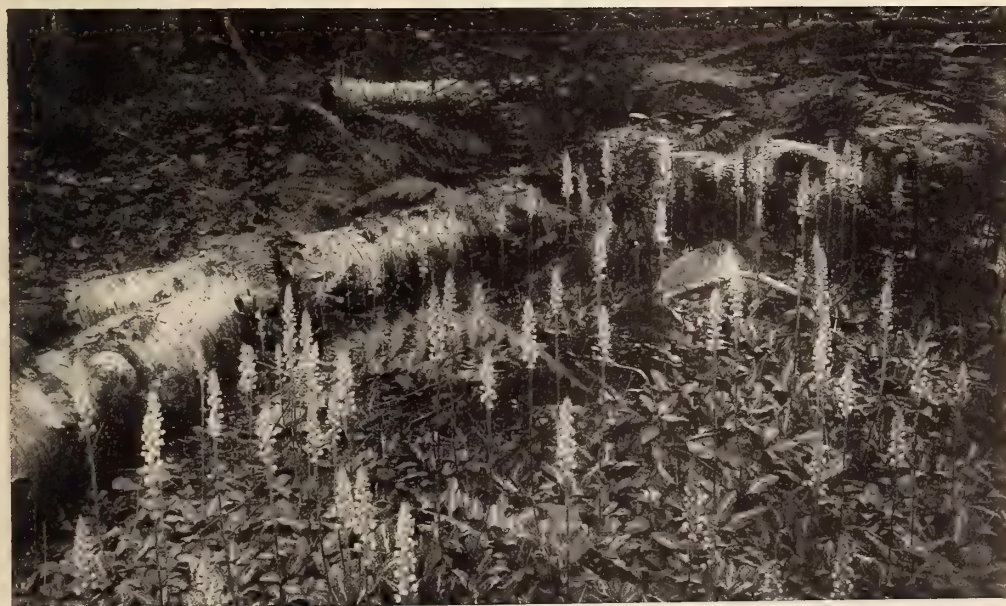


Fig. 9. Rattlesnake plantain (*Goodyera pubescens*), beloved for its mottled leaves and spikes of dainty white flowers. Showing part of a colony which is supposed to be the largest on record.

A Planting Plan for a Deep-Bayed Border—By I. G. Tabor New York

SHOWING HOW TO CREATE REAL LANDSCAPE VISTAS IN A BACK YARD 100 FEET DEEP—
THE EVERGREENS, WHICH ARE TO SCREEN UNSIGHTLY OBJECTS, TO FORM A WINDBREAK,
AND TO ACT AS BACKGROUND, FOR THE FLOWERS, SHOULD BE PLANTED IN AUGUST

THERE is no arrangement whereby greater depth or more sense of distance can be given in small space, than the device of planting the shrubbery so as to form deep recesses like those shown. From the house the view is into each recess or bay, while from a point opposite this border, the flowers growing in the depths of each would not be seen at all, thus affording continuous changes of floral effects as one moves about the garden.

Particularly is the shape of the large recess at the rear, farthest from the house, to be noticed. The tall shrubs and two evergreens are carried out a considerable distance from the end of the lot, and the outline of the planting forms an ellipse open at the one end. The effect is to form not only a deep recess, but a true pocket. Viewed from the house, this gives the illusion of a narrow opening leading through the border into something beyond, presumably a wider open space similar to the lawn in the foreground; and an opportunity for some sweet conceit of gardening on the plot marked No. 10 (wayfaring tree) which shall be all one's own.

The shrubs which make up this group will furnish a succession of blossom from April, when the golden flowers of the Forsythia (No. 7) throw their spray against the evergreen back-ground in masses of gay spring color, to the end of June, when the cornels (No. 3) finish flowering—and indeed, there is always the possibility, with *Rosa rugosa* (No. 11) of having flowers at intervals all summer.

The iris and phlox (Nos. 13 and 18), which form the herbaceous colony in this recess, will fill it with glowing color from the time the shrubs leave off in June, until, and possibly through, October.

When planting, be sure to keep the strong colors in phlox away from the iris, using only

white, and the palest mauve and pink tints next to it so as get a blending of the colors.

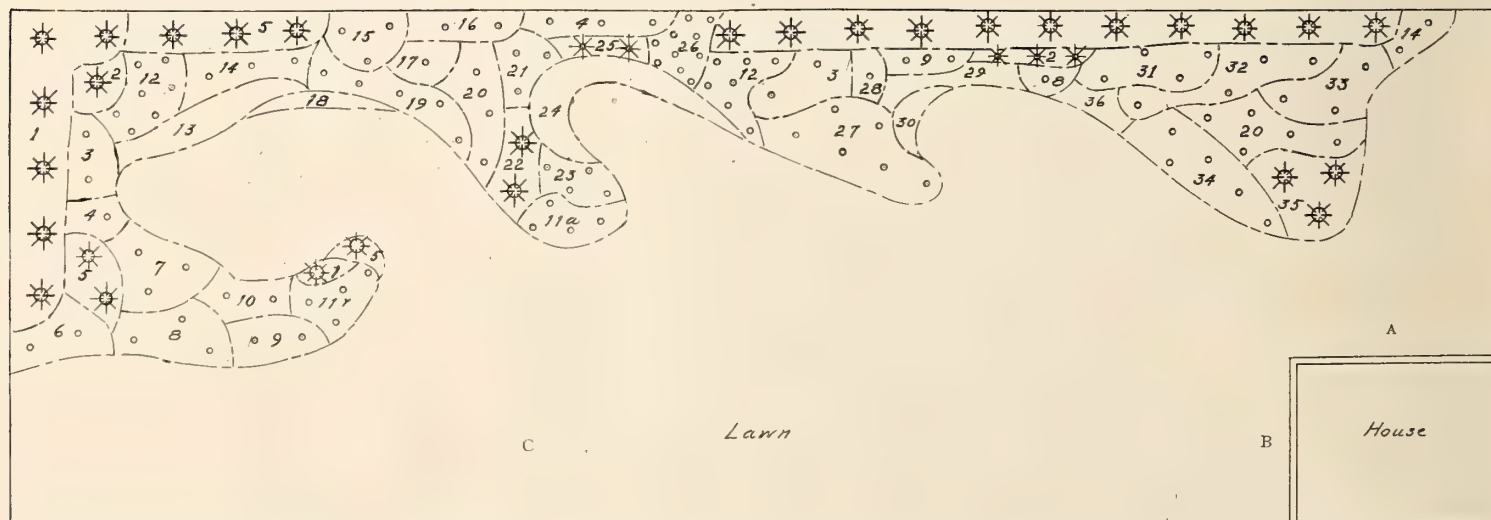
When all the blossoms have gone, there will still be the scarlet berries of the ever-

green thorn (No. 4), and the fruits of the cornels, euonymous and roses (Nos. 3, 14, and 11) to brighten the distance.

The second recess is different entirely,

PLANTING LIST

COMMON NAME	STANDARD AND TRADE NAMES	HEIGHT IN FEET	COLOR	NO. OF PLANTS NEEDED	MONTH OF BLOOM
1. Arborvitae	<i>Thuja occidentalis</i>	60	Evergreen	17	Evergreen
2. Mugho pine	<i>Pinus montana</i> , var. <i>Mughus</i>	8 to 10	Evergreen	4	Evergreen
3. Red-osier dogwood	<i>Cornus stolonifera</i> (C. <i>alba</i>)	8	Red Stems	4	June
4. Evergreen thorn	<i>Pyracantha coccinea</i> , (Crataegus <i>Pyracantha</i>)	6 to 20	White	4	May, June
5. Juniper	<i>Juniperus communis</i>	40	Evergreen	6	Evergreen
6. Japan quince	<i>Cydonia Japonica</i>	3 to 6	Scarlet	2	March, April
7. Fortune's golden bell	<i>Forsythia suspensa</i> , var. <i>Fortunei</i>	8	Yellow	3	April
8. Japanese barberry	<i>Berberis Thunbergi</i>	5	Yellow	4	May
9. Thunberg's spirea	<i>Spiraea Thunbergi</i>	5	White	4	April, May
10. Wayfaring tree	<i>Viburnum Lantana</i>	20	White	2	May, June
11. Russian rose	<i>Rosa rugosa</i> (a. var. <i>alba</i> , r. var. <i>rubra</i>)	6	White, purple	9	May
12. Showy azalea	<i>Azalea Indica</i> , var. <i>amena</i>	2 to 4	Crimson	14	April, May
13. Japan iris	<i>Iris laevigata</i> (I. <i>Kämpferi</i>)	3	Various	40	June, July
14. Japan spindle tree	<i>Euonymus alatus</i>	8	Yellowish	5	June
15. High cranberry	<i>Viburnum Opulus</i>	12	White	3	May
16. Golden elder	<i>Sambucus nigra</i> , var. <i>aurea</i>	12 to 25	White	2	May
17. Smooth sumach	<i>Rhus glabra</i>	10 to 15	Red fruit	1	July
18. Perennial phlox	<i>Phlox paniculata</i>	2 to 4	Red to white	16	June to Oct.
19. Swamp marsh mallow	<i>Hibiscus Moscheutos</i>	3 to 5	Rose	5	July, August
20. Rose of Sharon	<i>Hibiscus Syriacus</i> , var. <i>Jeanne de Arc</i>	6 to 12	White	8	July to Sept.
21. Deutzia	<i>Deutzia gracilis</i> , var. <i>rosea</i>	3	Blush	3	May
22. Red cedar	<i>Juniperus Virginiana</i> , var. <i>glauca</i>	40 to 50	Evergreen	2	Evergreen
23. Eva Rathke weigela	<i>Diervilla hybrida</i> , var. <i>Eva Rathke</i>	6	Carmine	4	May, June
24. Foxglove	<i>Digitalis purpurea</i>	3 to 4	Rose, white	50	June
25. Sawara cypress	<i>Chamaecyparis pisifera</i> , var. <i>filifera</i> (<i>Retinispora filifera</i>)	15 to 20	Evergreen	2	Evergreen
26. Adam's needle	<i>Yucca filamentosa</i>	4 to 6	White	11	June, July
27. Hardy hydrangea	<i>Hydrangea paniculata</i> , var. <i>grandiflora</i>	6	White	6	July, August
28. Morrow's honeysuckle	<i>Lonicera Morrowi</i>	6	White	1	May
29. Kelway's larkspurs	<i>Delphinium</i>	4	Blue	24	June and on
30. Forget-me-not	<i>Myosotis palustris</i>	1	Blue	8	May, June
31. Kinnikinnik	<i>Cornus Amomum</i> (C. <i>sericea</i>)	3 to 10	White	4	June, July
32. Arrow-wood	<i>Viburnum dentatum</i>	15	White	4	May, June
33. Lilac	<i>Syringa vulgaris</i>	12	Purple, white	3	May
34. Van Houtte's spirea	<i>Spiraea Van Houttei</i>	6	White	5	May, June
35. Irish juniper	<i>Juniperus communis</i> , var. <i>Hibernica</i>	20	Evergreen	3	Evergreen
36. Pompon chrysanthemum	<i>Chrysanthemum Indicum</i>	2 to 5	Red to white	6	October



This border is 100 feet long, and is designed to exhibit its best effect when seen from the house. From the points A and B one would look right into the bays, adding greatly to the apparent size of the garden. From C, different groups of plants come into view

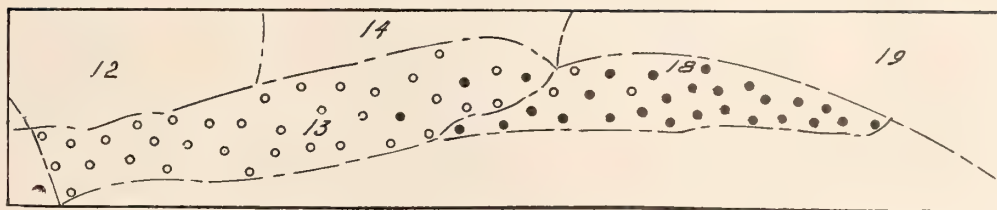
being quite open and the whole is looked into directly instead of losing itself back of any trickily planted trees or shrubs; and the planting is different in both style and color scheme. The white variety of the Rugosa rose (No. 11a), and the glowing carmine Eva Rathke weigela (No. 23) which blossoms in May and June, and occasionally during the summer, are massed against the silvery foliage of the blue cedar (*Juniperus Virginiana*, var. *glauca*) (No. 22) an evergreen whose color keeps it from appearing as near to as it actually is.

This, by-the-way, is a point about color in trees, shrubs, and perennials, which it is well to remember. Those of a silvery blue, purple, or bluish purple tone will always give an effect of apparent distance. To go to the artist once more for the reason, we find him using blues and purples freely when he wants "atmosphere," or distance; likewise we speak of the "purple haze" on distant hills or scenes. The color of the illimitable distance overhead is blue, and the depths of the sea are blue. Blue flowers, therefore, and bluish evergreens, where the space is small, will give a sense of largeness.

For the contrary effect, that is to foreshorten, use yellow flowers and golden foliaged shrubs and trees. This is not often necessary or desirable, but is a device to give cosiness to a place that has a lonely, bleak air about it. Yellow will shorten distance even more than blue will increase it, and the larger the mass of the color, the greater the intensity of the effect. Beware of its use, therefore, in small areas.

The colony of assorted foxgloves (No. 24) in this second recess extends all the way around it, with a group of rose pink deutzias (No. 21), a pair of feathery Japanese cypress (No. 25), a group of Adam's needle, (No. 26) and a mass of the lovely showy azalea (*Azalea Indica*, var. *amæna*) (No. 12) forming the background for their soft colors.

At this point the evergreens at the outside margin are discontinued for an interval, and a clump of golden elder (No. 16) introduced



An important detail in planting a border. Note how the plants of No. 13 and No. 18 are blended

with the evergreen thorn (No. 4) again, this time in a group. A great bank of the large panicked hydrangea (No. 27) forms the division between this and the last pocket, which is not so deep as its neighbor.

Here, once more, the style of planting changes. Its nearness to the house makes blue the desirable color for the colony which is to dwell here, therefore larkspurs (No. 29) have been chosen, with a mass of forget-me-nots (No. 30) at their feet. When the honeysuckle (No. 28) beyond these is covered with its jewel-like, ruby berries, the color effect will be superb. It is designed to have something in blossom during the entire summer in this part of the border. The beginning is with the fragrant little barberry bells (No. 8) in May, and not ending until frost cuts down the cheery chrysanthemum (No. 36).

An exception is made to the previously stated rule about yellow, by planting a flower of this color so near to the house. But it is done with the definite purpose of giving light and warm glow near at hand through the drear autumn days. The group is half hidden from the house, too, by the mass of Van Houtte's spirea (No. 34).

The border ends with a heavy planting of various deciduous shrubs—mock orange (No. 33), rose of Sharon (No. 20), spindle tree (No. 14)—and a group of three Irish junipers (No. 35), opposite the house. All these shrubs, or nearly all, are ornamental in fruit, as well as in blossom, so that the interest in the border does not flag with the end of the blooming period.

A general border of bulbs may be planted in front of the whole for early spring effect;

or a pocket may be quite filled with the poet's narcissus, or any other suitable flower, naturalized in the grass.

Never make the mistake, so common to many otherwise good pieces of planting, of cutting the turf away in a smooth line in front of the group or border. It has a hard, unnatural effect, and it is a very mistaken sense of neatness which prompts the garden maker to do it. Keep the grass away from the roots, of course, but let the turf extend up as far as it will, under the overhanging branches of shrubs, and you will have an easy flowing line, instead of the cut and dried look so fatal to informal planting.

There is another point in the planting of perennials which the plan cannot show adequately, but which the detail sketch illustrates. Always remember that in natural growth plants do not stop at a hard and fast line, but instead they dwindle off, scattering themselves in a straggling way, and finally disappearing. Follow this rule, and where two varieties join, blend them off gradually, scattering them into each other.

August is the month in which to plant the evergreens that are always indispensable to a perfect screen, and which in this case also form the background for the deciduous shrubs, while these in turn are the mass against which the herbaceous plants are placed in the "pockets" of the border.

The general outline of a border planting such as is here devised having been decided, arrangements can be made at once to put out the evergreens, and the finishing work with deciduous shrubs, perennials or bulbs is to be done in September, October, or November

The Ten Best Hardy Conifers—By J. W. Duncan

Boston,
Mass.

A BUYER'S PRACTICAL GUIDE, TELLING JUST WHAT THE TREES WILL DO, WHERE TO PLANT, AND HOW TO REALIZE THEIR BEST QUALITIES—THE SPECIAL VALUES OF EACH IN THE GARDEN AND LANDSCAPE

A LANDSCAPE without evergreens is the most dreary thing on earth in the winter; and equally our gardens need the same sort of relief. Of the hundreds of coniferous evergreens a few, which may be counted on one's hands, stand out pre-eminently as the best for general planting. August is the month in which the trees should be moved and planted.

THE TALLEST HARDY CONIFER

The white pine (*Pinus Strobus*), is the most useful conifer for general planting. It is the tallest growing evergreen tree east of the Mississippi river, and is a comparatively quick grower. It will thrive on very poor

soil, but will hardly grow at all in a clayey, moist subsoil. When small it is rather easily damaged by bleak winds, but after it has attained a height of ten or twelve feet, there is little danger from injury from that source. The trees may be planted in groups, belts, or singly to form specimens, if given sufficient room for development. It is a most noble tree, attaining a height of 150 feet. The leaves, or needles as they are commonly called, are long, and of a pleasing shade of green, not as sombre as many other conifers.

The white pine is easily raised from seed, but for the first few years does not make much growth. After it has attained a height of two

feet, it will make an annual growth of one or two feet. When small it is subject to attacks of several insect pests, the most common being mealy-bug and woolly aphis, both of which are easily destroyed by kerosene emulsion, or if the latter attacks the roots (and it frequently does) the best remedy is a mulching of tobacco stems, or a thorough watering with tobacco water.

THE FASTEST-GROWING CONIFER

The Norway spruce (*Picea excelsa*), is the fastest growing coniferous evergreen, and I may invite severe criticism when I accord it second place on my list because it is sombre and as ordinarily grown it does not



The tallest hardy conifer of the East, reaching 150 feet. The white pine (*Pinus Strobus*)



The fastest growing conifer, reaching 100 feet. The Norway spruce (*Picea excelsa*)



The best dwarf pine grows six feet high. The Mugho pine (*Pinus Montana*, var. *Mughus*)

retain its mature beauty as long as the white pine. It grows better in a moderately rich soil, and it likes abundance of nourishment. It is rather formidable in appearance, but by no means stiff, for its branches, which droop, extend far out, which gives the tree a most pleasing outline. The Norway spruce attains a height of 100 feet.

It is among the hardiest of the conifers, and will withstand strong winds. These trees are too often planted in close proximity to each other, with the result that in a few years they become scraggly with many dead branches, which has made them unpopular with many people. Given plenty of room to grow, it will become a graceful and handsome specimen, retaining its lower branches.

THE BEST EVERGREEN HEDGE

By general consent the hemlock (*Tsuga Canadensis*), is accorded the honors as the most ornamental of our eastern evergreens. The branches have a drooping habit, and grow from the trunk irregularly, thus avoid-

ing the stiff appearance so prevalent among the spruces. It looks well planted in clumps, or as single specimens.

Some people consider the hemlock hard to transplant, but with me it is one of the most easily moved evergreens. Near the seashore it does not thrive as a rule, but if once it becomes established, it will make a luxuriant growth.

As a hedge plant the hemlock surpasses all other evergreens. It stands trimming well, and on account of its small foliage and slender branches always has a graceful appearance. Pruning is the important thing in keeping a hedge up to the standard. For the first few years after planting little pruning will be necessary. An evergreen hedge takes longer to acquire shape than the more common deciduous hedges, but if plants about two feet high are used in planting, it will not take more than six or eight years to grow a well formed hedge.

THE BEST BLUE FOLIAGE

Among the conifers of the highest color, none equals the Colorado blue spruce (*Picea pungens*, var. *glauca*). There are several forms of this in the trade, varying somewhat in intensity, or brilliancy. The best of all is known as Koster's. The color of the foliage of this tree is a beautiful steel blue, and when the tree has attained over ten feet in height, it makes a very imposing appearance, especially in early summer, just after its new growth has been made. It is a slow growing tree and has the characteristically stiff habit of the spruce, but makes a beautifully symmetrical tree.

It is commonly planted as a lawn specimen, but it looks much better when planted in groups, which is the case with all these stiff growing trees. Its high price, however, precludes its very extensive use in masses. A small specimen two and a half feet high can be procured for five dollars.

It will become a tree of great beauty on the lawn, but its setting must not interfere with the coloring of other evergreens. It is one of the most hardy of the spruces. Its one

bad point is that it is comparatively short-lived; at about thirty-five years the lower branches die, and the base becomes ragged. Therefore, in landscape effects, it should always have low shrubbery in the foreground.

PROBABLY THE BEST FOR WINDBREAKS

As a windbreak, as a shelter for buildings, or as a screen for unsightly objects, white spruce (*Picea alba*), is particularly good. Its ability to stand the trials of bleak winds is well assured, and it is unquestionably the most hardy of the native spruces.

The white spruce is a quick growing tree, ranking next to the Norway spruce or the white pine in that respect. This tree usually grows sixty to seventy feet in height but occasionally reaches one hundred and fifty feet. The color of the foliage is a light, glaucous green, and when young it forms an elegant tree of a regular conical shape. Its habit is dense, the branches and foliage making an almost solid mass, which is of course so desired in a tree to be used for a windbreak. A little attention to the proper planting of a windbreak will repay one. It should not be a mere straight row of trees, as is so commonly seen.

A continuous belt of trees planted irregularly makes a much more pleasing effect



The common black spruce (*Picea nigra*) is always disfigured by its cones, and is a slow grower



The best blue foliated evergreen is Koster's Colorado spruce (*Picea pungens*, var. *glauca*)

on the landscape, and is even more efficient as a "break."

THE BEST ARBORVITAE

As an ornamental tree for general planting where an evergreen of moderate height is wanted, the common arborvitae (*Thuja occidentalis*) is I think to be preferred. It can be put to so many different purposes, and seems happy in all. As a hedge and as a screen, on account of its dense habit of growth, it is especially recommended for flat, wind-swept sections. As an ornamental tree on the lawn, it is unsurpassed by any in its height and style of foliage. The color of its foliage is brownish green, turning darker as winter approaches. In winter its color is not attractive, but as spring arrives it changes from brownish to a dense green, turning darker as the season advances. It revels in a good soil, and will become ragged and shabby in appearance if planted in too dry a location. The Siberian variety has been said to be better adapted to standing our severe winters, but I have never noticed any material difference in that respect; it does, perhaps, form a slightly narrower cone, and so has a denser appearance.

THE BEST DWARF PINE

The most hardy of all the globular shaped evergreens is the Mugho pine (*Pinus Montana*, var. *Mughus*). It is one of the most attractive evergreens for planting on the lawn, seldom growing over six feet high, and having acquired a very globular form. The foliage is short, of a deep green color, and the short jointed growth of the branches results in a very dense mass. The tree is not a rapid grower, the season's growth being only a few inches. It will flourish on a dry knoll, and for planting where rocky ledges ap-



The best evergreen hedge plant, the hemlock (*Tsuga Canadensis*). Forms a good hedge in about six years

pear near the surface of the ground, is really indispensable.

A CREEPING CONIFER

When planting on rock work an evergreen of a creeping habit is often very valuable. The best creeping conifer is the savin (*Juniperus Sabina*). There are a number of forms of the creeping juniper, mainly varieties of the common juniper and this species. Its color is a beautiful shade of deep green, and it has a free and graceful habit of growth.

THE BEST YELLOW FOLIAGE

The Japanese cypresses (*Chamaecyparis pisifera*), or retinisporas, as they are most commonly called, comprise the most decorative of all the conifers. They are remarkably beautiful in their feathery foliage, even when only a few inches high. When they attain to a height of three feet or more, they are perfect, as lawn specimens. Indeed, they are well suited for such use, as growth is not rapid, and they do not soon outgrow their surroundings.

While these plants are known in gardens under the generic name of Retinispora, they are in reality young plants of *Chamaecyparis*, and have foliage characters and habit quite different from the adult trees, which one never sees in gardens.

The Japanese golden plumed cypress (*C. pisifera*, var. *plumosa aurea*), is by far the best yellow foliated ornamental evergreen. The branches are short and feathery in effect, giving the plant a compact habit yet graceful outline, that is very pleasing. The foliage is golden yellow. It is used extensively by some for ornamental bedding purposes, being planted in dense masses, but given plenty of room and a rich soil, it becomes a well-formed, wide conical tree.

THE PRETTIEST FEATHERY EVERGREEN

Another of this group is easily the best feathery foliated evergreen. It is *Chamaecyparis pisifera*, var. *filifera* (known in gardens as *Retinispora filifera*) and is easily recog-

nized by its beautiful drooping branches and thread-like branchlets. The color of the foliage is a light green. This is a low growing tree, and is rarely seen as much as fifteen feet high, although an occasional plant reaches twenty feet. In its smaller sizes it is a very ornamental evergreen, and like the other retinisporas requires a very rich soil.

All the foregoing, except the Japan cypresses, will thrive in almost any poor soil, so long as the subsoil is not of a damp, clayey nature. In urban districts where smoke is prevalent they will not thrive, but in suburban and rural places, they are always satisfactory.



The best tree for a windbreak. The white spruce (*Picea alba*). Plant in broken lines

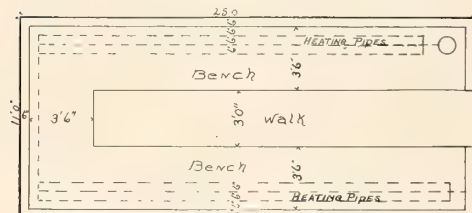


The best small all-purpose evergreen. The common arborvitae (*Thuja occidentalis*)

The Real Thing in Greenhouse Construction—By Leonard Barron New York

SOME ASTONISHINGLY CHEAP HOUSES AND SOME THAT ARE DEAR AT ANY PRICE—A CLEAR EXPLANATION OF THE DIFFERENT TYPES—HOW TO BUILD THE KIND THAT WILL BE A SOURCE OF JOY AND PRIDE, INSTEAD OF AN EVERLASTING BILL FOR REPAIRS

THE best type of greenhouse for all-round purposes is unquestionably what is known as the even span—that is, a house in which the roof is in the form of an inverted V, so as to be exposed as much as possible to sunlight, and having the ridge-pole in the centre. All other types of houses are



The plan of \$1,000 greenhouse illustrated below, showing proper distribution of heating pipes and bench space

modifications from this simplest form, and are designed in some way or other to fit some special requirements. These requirements may be: the cultural necessities of some particular crop; a desire to have the atmospheric conditions inside more or less abnormal at given seasons (as in a forcing house); or an adaptation to some peculiarity of the situation, as when a greenhouse is built as an adjunct to other buildings.

It is plain common sense that the ideal greenhouse is one in which the light is most nearly that which exists outside, and in which the heat is as evenly distributed. It is practical experience that a structure with as few angles and turns in it as possible, and with a minimum of woodwork in its superstructure, best answers these conditions.

A few years ago greenhouses were built as

though they were barns; heavy joists and rafters, such as one might use in the construction of a much more solid building, were used for the frame work, and small panes of glass were used for the glazing. From the earliest days of greenhouse construction, the line of development has been toward a reduction of the timber and an increase in the size of the panes of glass, until to-day the accepted standard of size for the glass, where the question of snow-weight is not a serious one, is sixteen inches wide. Even larger sizes are used in the best style of modern construction, and panes 24 x 24 inches are quite popular in commercial buildings, and there is apparently actually less breakage in the larger sizes; 16 x 24 inches is a popular size. The weight of snow, however, is not a very serious problem, except on flat pitches if the inside temperature is kept to about 60°. Of course, the larger the pane, the greater the light inside the house, and the more natural the growing conditions for the plants, but as an offset to this is the expense of the larger sizes. Not only is the loss for repairs greater, but the ratio of cost increases very greatly in the larger sizes. It is impossible to make a quotation on the price of glass. It fluctuates almost as much as Wall Street securities. Sixteen-inch glass, or even fourteen-inch, will be found thoroughly practical, and economical in use.

Greenhouse building has developed into a special industry, and the modern American greenhouse is the highest type of construction. It is built with as careful calculation to its situation and its requirements as is the country dwelling house. Such a thing in the natural course of events is not a cheap thing

The low-priced "cheap greenhouse" is a make-shift of some sort. Perhaps its roof is constructed of hotbed sash, a perfectly feasible method of construction, which for ordinary commonplace gardening will answer admirably. Or, its foundation is merely the plain earth—such a building does admirably



The lean-to is often the most practical. This one, 18 ft. x 9 ft. 6 in., with concrete foundations, heated from the house water system, cost \$325 complete

in the summer time, and even in the late spring and early autumn, but woe betide the enthusiastic amateur in winter who, being possessed of one of these light greenhouse structures, has indulged in a few costly, exotic plants. They will be frozen, to a certainty! It is economy to pay a fair price in the beginning to secure a properly built greenhouse, that will withstand the trials of winter. Any old sort of a thing will do for a summer greenhouse. It is in the winter time that the supreme test is made.

THE SASH GREENHOUSE

The cheapest form of practical greenhouse is made by using hotbed sash supported on a skeleton frame, from which they can be removed entirely in summer time. The standard size for the sash is 6 x 3 ft., and the house can therefore be made in any multiples of three feet, as regards length. The width of the house is governed by the pitch of the roof. Using two sash for an even span, the ends of the sash supported by a central ridge pole, a width of about ten feet would be had, giving the pitch to the roof a rise of about seven inches to the foot. Such a house can be built for very moderate cost. The lumber for a house may be estimated roughly at about \$3.00 per linear foot, and the glass at \$1.50 per foot. Carpentering and other labor will vary from \$2.50 to \$3.00 a foot; and together with heating, a house of this style twenty feet long, may be erected for possibly \$250. If iron frame is used, instead of all wood, there is greater durability, and the structure being more slender, will



Even span house without eaves, giving a maximum of light. This is the best model of all-purpose house; all iron frame, slate benches, cement walk. A house of this construction (11 x 25 ft.), with heating pipe and boiler complete, can be erected near New York for \$1,000



The three-quarter span is the most approved type of house for forcing roses. The absence of eaves is a feature of this style of construction, making a very light house

admit more light, but the cost will be increased by perhaps \$100.

COMPARATIVE COSTS

It makes very little difference what form of house is to be erected. The cost per lineal foot for an even span is practically the same as for a lean-to of the same length and width. In the lean-to, in order to get the sufficient bench and walk space inside, it is necessary to carry the roof to a point much higher than in the even span house. The extra framework and material for the roof cost a good deal, yet add practically nothing to the efficiency of the house.

The three-quarter span house, which differs from the even span, in having the ridge nearer to one side, and a short span from there down to the top of a high wall is equivalent to a lean-to with a few feet on the top cut off and turned over. It is a practical house for fruit trees particularly, where the main object is to maintain a slight degree of forcing. Such a house should stand with its exposure to the south; in other words, it should extend east and west; the object being to secure as much of the sun's heat as possible rather than abundance of light.

For ordinary plants, such as the amateur will grow in a general collection, a lean-to is not so well adapted as the even span because the illumination being all from one side, the plants get drawn in that direction, just the same as they do in the ordinary window garden.

Where the glass structure is designed for ornamental purposes as much as for utility, what is known as the curvilinear roof is very popular because it does away with the straight

lines and sharp angles which characterized the simple greenhouse. The curved line adds a degree of beauty, and where this is an important consideration, a little of utility may be sacrificed for the sake of art.

THE ROOF PITCH

Greenhouse builders vary the degree of pitch of the roof up and down from $7\frac{1}{2}$ inches



The curvilinear roof, very artistic, but expensive, and obstructs light. The kind of greenhouse that many beginners affect: beautiful lines and wood-work. The poor foundation needs protection in winter

to the foot, but it is always somewhere around that figure, which is equivalent to an angle of 32° . This angle allows the sunlight to pass through the glass most directly for the longest time during the day, together with accomplishing the very desirable object of quickly shedding the snow. A roof that approaches the flat presents a big problem in winter, and artificial means may have to be resorted to in order to remove the snow and admit light to the growing plants, but its



Wood frame lean-to. Not appreciably cheaper than an even span. Should be run east and west, for maximum of sunlight and sunheat. Costs about \$50 a foot, complete, with heating

most serious objection is the impossibility of making it tight—it will surely leak. A pitch of six inches to the foot is as low as should be built. A much higher pitch, while solving the snow and leakage problems, results in a great loss of light at the times of year when the sun does not rise very high and when it is most needed.

In the curvilinear roof there is always some one portion, it is true, at which the sun's rays strike at right angles, but in by far the larger portion the glass is standing at all variations from that to the perpendicular, when practically no light is passed through. Another



The even span, running north and south, is the best all-purpose house. A first class modern building, all iron frame, 11 x 20 feet, heating and all complete will cost about \$1000

objection is that this very pretty roof is certainly ten per cent. more costly.

THE DIRECTION OF THE SUN

There is a division of opinion as to how a house should be placed in relation to the sun. One that is built entirely of glass should perhaps best run north and south. It is evident that this will give the greatest exposure to the sun during the longest number of hours, both sides receiving illumination at some time during the day. The small end of the house to the north is the only portion that does not receive the sun directly.

For this very reason, it is better to select a south wall of a house for the ordinary conservatory, or lean-to greenhouse, when such is erected in connection with the dwelling. The north side of such a house has no glass whatever. Most florists, however, are now placing their carnation and rose houses east and west.

THE COMMONEST BLUNDERS

The chief mistakes which the amateur is likely to make in constructing his own greenhouse are these:

1. Insecure framework.
2. Too heavy lumber and other than cypress.
3. Incorrect pitch to the roof.
4. Lack of economy in internal space.
5. Skimping the walls and foundations.

Perhaps the last is the most common of all, and when the winter comes, the problem of maintaining a proper growing temperature causes more anxiety than the whole crop of the house is worth. A greenhouse must be built for winter; it is not an uncommon sight to see an otherwise very pretty and satisfac-



A home made amateur's house of wood. Good for starting seeds, bulbs, etc. The roof is too low pitched for best results in growing plants. Could be erected for \$250



A compact and picturesque range of houses giving all possible variations of exposure, etc. The kind to build for a varied assortment of plants. Costs some thousands of dollars



Ideal situation and surroundings for a greenhouse, showing how evergreens may be used as a wind-break on the north. Frames are extended on the south front. This is an ideal house for a large garden

tory little house which has to be boarded up and packed all around the foundations with some heat retaining material, so as to keep the inside comfortable. The saving of perhaps \$100 or even less, at the very beginning of things, thus results in an annual expenditure in hard cash of perhaps \$10 or \$15 and always with the risk of the weather being just a little bit more severe than usual, and the result being a total loss of the most valuable plants.

HEATING THE HOUSE

In a greenhouse in which a general collection of plants is to be grown it is necessary to maintain a temperature of from fifty-five to

sixty degrees, when it is zero weather outside. Lettuce and violets may be grown in a house which runs ten degrees lower than this, but no one should build a greenhouse of the ordinary type, and calculate on maintaining a lower degree of heat than what is here given.

Heating is best done by hot water, and in a small house the pipes may well be connected with the heating system used for the dwelling, if the greenhouse and the home are within any sort of reasonable distance from each other. For large houses or ranges of several houses together, the independent heating plant is necessary. Steam is used for heating by commercial florists, but it is economical only on a large scale. As a uniform degree of temperature must be maintained in the house, the fires where steam is used, need watching continuously during cold weather, for the moment the water ceases to boil, the pipes cool off, and some considerable time is consumed in starting the heat running again. With hot water there is much more latitude in attention, for though the fires dwindle, the water which fills the pipes will carry heat for a long time, and it will circulate until the last degree is radiated. But a hot water system costs in the installation about one-fourth more than steam. Very small houses may be successfully heated by kerosene stoves, which may be placed inside the house. The fumes which may be given off are not likely to be seriously injurious to plants. A much better way would be to use oil heaters for an inside water circulation, carrying off all products of combustion by means of a flue. Coal stoves should never be installed inside the house. It has been done successfully by some amateurs, but the danger of coal gas being driven back into the house by a down draft in the chimney is always present, and is too great a risk to run. Coal gas and illuminating gas are two virulent poisons of plants.

THE QUESTION OF WIDTH

The standard widths for greenhouses are 6 feet 8 inches for a lean-to with one bench,

and 9 feet 4 inches for a lean-to with two benches, and a central walk. The difference in width which gives the extra bench is very slight, and the cost for twenty-five feet is for the single bench \$450, for the double bench \$700. An even span house 9 x 17 ft. all wood frame, boiler and heating complete, can be erected for \$500.

FIGURING THE HEATING

How to maintain a minimum of fifty-five degrees? It's quite easy to know what to do. Find the area of your glass surface in square feet, and allow one foot of radiating surface for every three feet of glass. Walls up to 2½ ft. high are generally ignored in making the calculations for heating. If they are anything more than this, allow one-fifth of the area as equivalent to glass. Heating is usually laid on by 4-inch (outside measure) cast iron pipe, if water is used, and one lineal foot of this equals one square foot of radiating surface.

Another commonly used size is 2-inch wrought iron, of which 1.6 lineal feet is equivalent to one square foot of radiating surface.

Having ascertained the amount of radiating surface necessary, it is an easy matter, upon reference to the catalogues of greenhouse builders and boiler makers, to decide upon the capacity of the boiler to be bought. These details are all tabulated.

Though as a matter of fact it may be taken for granted that the maker's statement represents slightly under the full efficiency of the boiler, yet there is nothing like having reserve power, and the amateur who wants comfort in his greenhouse, and comfort in running it in heavy weather, will purchase a boiler which is listed to feed at least 25 per cent. more area than he really requires. There is not only reserve power for unusual strains, but a big, deep, fire can be operated with so much less labor, and actually during the winter months, with a less consumption of coal than would be the case with a boiler that was piped to its full efficiency.



An ornamental adjunct to the dwelling. Merely an enlarged window garden. It will keep plants alive, but is not the thing for growing them. Too flat roof, and too heavy construction

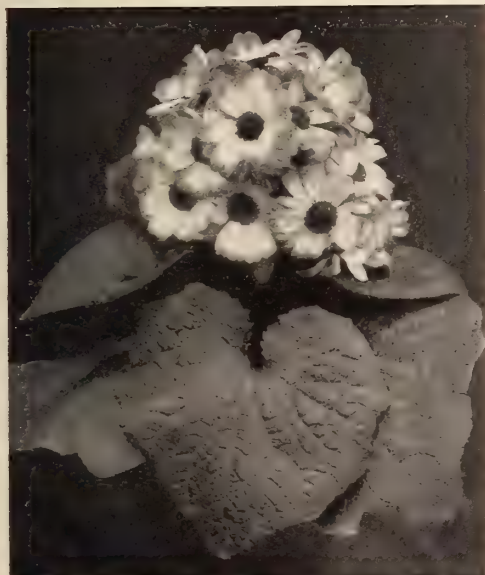


The best kind of low priced house to attach to a dwelling. Does well for foliage plants. This type of house will cost about \$500 for 6 x 20 feet

The Joys of a "Cool Greenhouse"—By Parker T. Barnes New York

THE TREASURES THAT MAY BE HAD IN A GREENHOUSE WHOSE TEMPERATURE IS ONLY 40° TO 50°—A PRACTICAL SCHEME FOR PEOPLE WHO ARE NOT COAL BARONS

IF YOU want a winter garden at the least expense, grow the plants mentioned below. Most of them will bloom in the dreary month of March, but the azaleas and some others may be had in time for Christmas, if started early. All of them may be started or purchased now, or in late



The cineraria has some of the richest blues, reds and purples in the great family of composites

summer. I believe they are the best for beginners, and the plants that are best for beginners are generally the ones that the old-timers come back to after expensive tests of novelties. They are the showy, long-lasting, easily grown coolhouse plants, that you will grow year after year with increasing satisfaction.

The showiest greenhouse shrubs are the



Indian azaleas, not so highly colored, but their ever-green foliage makes a better background

azaleas. Both the Ghent and mollis azaleas bloom before the leaves expand. The mollis has flowers two and a half inches across, which are yellow, orange or pink, while the Ghent has flowers in all shades, from white to red and lilac. The Indian azalea is an ever-green, with small, shiny, dark green leaves. The flowers are either single or double, and vary from white to deep red, but lack the fire-like gorgeousness of the mollis varieties.

It is cheaper and better for the amateur to buy these plants from the dealers, who import them from Holland, in the fall, than to attempt to propagate them by cuttings or grafting.

When you receive these plants which have just been imported, they are without pots, but have compact, hard balls of peaty soil around the roots. If the balls are dry, soak them in water until thoroughly wet; then put them into the smallest pots you can. Use a fine soil, made of fibrous loam, peat and sand. Pot firmly, and water. These can be stored in a cool, light airy place with a temperature of 35° or 40°, such as a deep coldframe. Look out for mildew.

The Ghent and mollis azaleas can be had in bloom in about six weeks from the time they are brought into heat. Some of the Indian azaleas, particularly Deutsche Perle, a double white, and Vervaneana, a double pink, edged with white and more or less blotched with red, are hard to keep from flowering, particularly if you do not want them until late in the season, unless kept very cool.

After flowering, pick off the dead flowers, and water freely, in order that they may make a good growth. If any shoots are growing faster than the others, pinch them back, to form a symmetrical plant. As soon as all danger of frost is past in the spring, plunge the plants in the open ground and syringe daily, to keep down the thrips.

GERANIUMS THE EASIEST OF ALL

So common that we seldom give its transcendent merits a second thought, yet the easiest plant to grow in the house, is the ordinary geranium. It wants a rich soil; but the secret of success with it is not to over water—on the other hand, never allow it to become dry. To use a gardener's expression, keep it on the "dry side." A very pretty way of handling geraniums is as standards. For Christmas decoration the standards covered with large trusses of flowers are beautiful. It takes about two years to grow a good standard two or two and a half feet high.

THE PELARGONIUM OR SHOW GERANIUM

A close relative of the common or zonal geranium, is the pelargonium (*Pelargonium domesticum*) of which the "Martha Washington geranium" is the most familiar example. This does not have as many flowers in a truss as the geranium, but they

are larger and much handsomer. The flowers usually have a white ground, and are variously marked or blotched with red or purple.

These plants are flowered in May and June. As soon as the plants have done flowering remove the old flower stalks and



Calceolarias. Somewhat like lady's slippers, yellow, red, brown, and spotted

set the plants outside in the full sun. Here let them ripen their wood, and gradually withhold water, giving the plants a good rest. In September prune them into shape, cutting back as one may fancy but removing all soft and weak shoots. Then shake the old soil from among the roots, and repot them in a



Pelargoniums require a little more care than ordinary geraniums, but they are far showier

smaller-sized pot than they have been in, one in which you can just get the roots comfortably. Give them a thorough watering, and place them in a deep coldframe. Here they may be left until late in the fall, so long as they are protected from frosts. In October transfer the plants to the house. In January they will need a shift into the larger pots in which they are to bloom.

During the midwinter months give only a small amount of water. As they grow, pinch out the shoots, in order to get a well shaped plant; also take out any weak shoots

the foliage is tender, and is easily injured by fumigation with tobacco stems. The blooming season is prolonged by giving the plants a slight shade.

THE ORCHID-LIKE CALCEOLARIAS

The showiest herbaceous plants in the cool greenhouse during March and April are the calceolarias and cinerarias. A house with a night temperature of 45° is none too cool, and then you must put your calceolarias in the coolest end.

The flowers of the calceolarias are yellow,

seeds are sown in July, and the earlier, the better. The seed soil must be very fine, as the seeds are very small. Just sprinkle them on the surface of the soil, and cover the seed pan with a piece of glass until the young seedlings break through the soil, then admit the air gradually.

While the plants are still small, prick them out into small pots, putting them in a soil made of rotted sod, leaf mold or peat, well decayed manure, and sand, in about equal parts. Keep them growing as rapidly as possible, and shift them as fast as they fill the pots with roots. Never allow them to become pot-bound, as this will spoil all chances of good flowering plants. Flower the plants in 6- or 7-inch pots, or if they are extra large, in 8-inch pots.

Good drainage must always be supplied to the pots. The little pots in which they are first placed should have some sphagnum moss in the bottom, and at all subsequent pottings, give a liberal amount of drainage.

The only likely insect pests are the thrip and saphis. Careful syringing each day will keep the thrips down, and tobacco stems scattered among the pots will act as a preventive to the aphides.

After the plants are well established in their flowering pots, and the flowering stems are beginning to show, manure water applied once or twice a week will be a benefit to them.

FOOT-LONG SPIKES FOR CUT FLOWERS

An easily grown cut flower is not always to be had in the small greenhouse, but a trial of a few plants of snapdragons will surprise you at the ease with which they may be grown. These can be had in beautiful spikes a foot long, and in white, yellow, and red.

For flowers next winter, sow the seed in July, or early in August, and grow on the plants as rapidly as possible, shifting them from the 2-inch pots in which they are started to 4-inch, and later 5- or 6-inch, when they demand it. Snapdragons will do equally well, if not better, planted out, in benches a foot apart.

THE LOVELY CYCLAMEN

No plant gives better satisfaction than the Persian cyclamen (*C. latifolium*). Its flowers last a long time in good condition, and it has a wealth of color. The flowers are very curiously shaped reminding one of its relative the shooting star (*Dodocatheon*). They are white or varying in different shades of pink to very dark rose color with a purple blotch at the mouth. There is a form of the petals which have fringed edges.

These are best grown from seed and so constant are some of the strains that one can buy named forms which come true. The largest flowered form is called giganteum, but the large flowers are produced at the expense of quantity, so the amateur would better content himself with the good strain of a smaller flowered form. It takes fifteen months to grow the cyclamens from seed to flower and they should never receive a check. When through flowering throw the bulbs away, they do not do well when held over.



The Chinese or mollis azalea (*A. Sinensis*); easily forced for Christmas. Flowers yellow, orange, or pink

which may start. Discontinue stopping the branches in February, as the flower buds commence to form.

The appearance of the plant will be greatly improved if trained to a stake. This must be done before the wood hardens, which it does quite rapidly.

As soon as the plants are well established in their flowering pots apply manure water and keep this up until the flowering time.

The red spider and the aphides will surely bother. Syringing the plants with one of the tobacco extracts which has been diluted with water will be the best preventive, as

with brown spots, and in form remind one very much of the wild lady's slipper orchid. The leaves are large and coarse, dark green, and the plants from one to two feet high.

HIGH-GRADE CINERARIAS

The cinerarias grow about two feet high, have large, coarse, dark green leaves, and bear immense flat clusters of daisy-like flowers, which are either blue, red or white, or have white centres edged with various shades of blue or red. The secret of success in growing these plants is to keep them cool.

In order to have flowers during March, the



Bougainvillea, grown for its showy purple bracts. May be had in flower any time from Christmas on

For spring flowers the seeds are sown in November or December. These are slow to appear above ground because a little bulb is formed before the first leaf shows. As soon as two leaves have been made, transplant the seedlings to 4- or 5-inch pots, placing several in a pot and putting them near the outside. These young seedlings are very apt to suffer from too much water and over potting—when the plants have about half a dozen leaves shift them to 3-inch pots. They will not need another shift until the middle of summer when I should put them in 4-inch pots. In September shift them to 5- or 6-inch pots in which they will flower.

The best soil is a good fibrous loam and leaf mold, well decayed horse manure and sand in about equal parts.

THREE SHOWY GREENHOUSE VINES

Beautiful easily grown vines with which to adorn the greenhouses are the Bougainvilleas (*B. glabra* and its var. *Sanderiana*), and the purple wreath (*Petrea volubilis*). The striking feature of the Bougainvillea is the large, highly colored bracts. In *B. glabra* they are a rosy scarlet but in the variety *Sanderiana* they are of a deeper shade.

The purple wreath is not often met with. It is a choice plant and a valuable addition to a collection. The flowers are borne in spikes, six inches long and the individual flower has the appearance of a five-pointed star of lilac with violet in the centre.

All these plants are easily grown either in pots or trained to columns or rafters. These plants are flowered in April or May but may be had at Christmas by resting them earlier. Withhold water for a week or ten days. Then shake out the soil from among the roots and repot in fresh soil. Prune the tops back to suit your taste. When potting give good drainage and until the plants become



Some fun in this, and cut flowers all winter! A specimen plant of double nasturtium



Having fun. Pottering about in the greenhouse growing flowers in the teeth of a December gale

well established keep them in a moist atmosphere, give a light syringing daily, and shade during midday. In June put the pots outside where they can have the full sunlight. In September after the plants have finished growing and the wood is thoroughly ripened store in a light cool place where they can have the sun and yet be cool enough so they will not grow. Give only a small amount of water for the plants must rest. To get these into flower will require about eight weeks in a night temperature of 50° or 55°. When in flower put them in a cool, airy place with perhaps a very light shade and the season of bloom will be lengthened.

A FLOWER THAT OPENS ONLY IN THE SUN

The fig marigolds (*Mesembryanthemum*) are but little grown in this country. Two of them which are showy annuals that may be grown either from seeds or cuttings are *M. pomeridianum*, with yellow flowers, and *M. tricolorum* whose yellow flowers are blood red inside. When grown in pots for greenhouse decoration they should be in a well drained, sandy soil, and an addition of old brick rubbish finely broken up may help the mechanical texture. Grow them in a light, cool, dry atmosphere and give them only a small amount of water during the dark winter months.

AN EASILY GROWN YELLOW PEA-LIKE FLOWER

The genista (*Cytisus Canariensis*), a handsome evergreen shrub, bearing many spikes of small, yellow, pea-shaped flowers, is very easily handled and I would not be without some good specimens. After they have flowered, in March or April cut back the plants, give them a small shift and put them in a close atmosphere and syringe daily until well established, then give plenty of air and

a slight shade. As soon as the danger of frost is past put them out of doors for the summer, and syringe daily. Leave them out until frost threatens, then store them in a cool greenhouse one having a temperature not exceeding 40° at night, or in a pit or deep coldframe where frost will not reach them. See that they have plenty of light and air, as they mildew easily. When ready for forcing give them a temperature of 50° at night and they will flower in a few weeks.

NASTURTIUMS FOR PICKING

The nasturtium (*Tropaeolum majus*) is a very showy and useful plant to grow in the greenhouse during the winter. Give it a sunny situation and a wealth of red or yellow flowers will be produced from which daily pickings can be made. Sow the seeds in July or August in 2-inch pots, and as they grow shift gradually until in sixes, which is ample room for a single plant. Train the plants to the posts or rafters of the house. Very pretty effects can be had by growing six or seven plants in a large pot, training the vines over a frame. Nasturtiums thrive equally as well in boxes. In this way they succeed admirably when grown in a living room window. Any good, rich, well-drained soil will suit them.

PLANT FOOD

The best and most easily handled plant food is manure water. To make this, put a five-pound package of sheep manure in a barrel (50 gallons) of water, or use fresh horse or cow droppings, putting in enough to give the water the color of very weak tea. This should be used while still fresh. Never water the plants with manure water if the soil is dry, as it will do them an injury.



Mesembryanthemums—hard to pronounce, but easy to grow, and pretty. They open only in sunshine



A double variety of the autumn crocus (*Colchicum autumnale*), naturalized in the grass. Flowers light purplish rose.

Bulbs for August Planting—By Thomas McAdam New Jersey

LILIES AND FREESIAS FOR CHRISTMAS BLOOM MUST BE PLANTED NOW—ROMAN HYACINTHS FOR THANKSGIVING—ALSO THE SPANISH IRIS, MADONNA LILY, AND FOUR SEPTEMBER-BLOOMING BULBS

THE advance guard of the fall catalogues appears in August, and the prudent florist orders his Bermuda lilies then. One of the pretty things that a gentleman who owns a greenhouse may do is to flower some lilies for Christmas. The lily is the symbol of the Nativity, as well as of the Resurrection, and has a certain sacred character which no other flower possesses in like degree. For Easter bloom an October start is usually early enough, but for Christmas lilies you must get your bulbs in August.

The seven-to-nine-inch bulbs are the favorite for Easter, but the five-to-sevens are thought to be better adapted for Christmas. Put them into 4-inch pots, plunge them in a frame, and cover them with sifted coal ashes or excelsior. As soon as they have made good balls of roots bring them indoors, transfer them to 6-inch pots, give them a night temperature of fifty degrees until they seem at home and then change to sixty.

BULBS FOR HOUSE CULTURE

Nothing is sweeter at Christmas time than the fragrance of freesias, and their lovely one-sided horizontal spikes are always welcome.

In ordinary house culture, freesias hardly bloom before February and if you want them during the holidays you should order the bulbs in August. The pure white variety is most esteemed. Plant seven bulbs in a 5-inch pot. Be careful not to keep the soil wet all the time or the freesias will rot at the surface of the ground.

Roman hyacinths can be had at Thanksgiving without a greenhouse if bulbs are ordered in August. The Roman hyacinth is the most accommodating of all bulbs. It requires the shortest period of root growth in a dark, cool place, and can be had in bloom from November to May by means of successive pottings. The Roman hyacinth has none of the stiffness of the common hyacinth. The extra early strain will bloom in October.

TWO IMPORTANT HARDY BULBS

The Madonna lily and Spanish iris, unlike other hardy spring-blooming bulbs, ought to be planted in August because they have to make a leaf growth in autumn. The Madonna or Annunciation lily (*Lilium candidum*) is the best hardy white lily there is. It is also

the earliest common lily, blooming in June. Its fragrant bell-shaped flowers are four or five inches across and as many as twenty-five are borne on a stem, though eight or ten would be nearer the average. It is important to dust the bulbs with sulphur to kill disease germs.

The only common bulbous irises are the Spanish and English, which must be planted in the fall. The German, Japanese and Siberian are rhizomatous and are best planted in the spring. The Spanish irises have the merit of blooming a fortnight before the English and though smaller, the flowers are of brighter and more varied colors, including self-yellow, which the English irises do not have. There are about fifty varieties. Thunderbolt is said to be the showiest; it has bronzy purple standards and the falls are chestnut-brown, with a large orange blotch. Belle Chinoise is the earliest self-yellow. Mon Bijou is blue. Snowball is perhaps the best white.

FOUR SEPTEMBER-BLOOMING BULBS

It is a wonderful thing to see hardy bulbs blooming in the garden in September, espe-



The giant lily (*Eremurus robustus*), which grows to the height of a man and has spikes four feet long

cially when they come right up out of the ground without any leaves as the autumn crocuses (colchicums) do. I was much impressed with their beauty last fall in New England. They have multiplied to an astonishing extent in Salem gardens, where they have been left alone for years. The commonest species is *Colchicum autumnale*, pictured on page 27. The typical form has light, purplish-rose flowers. There are also single and double whites, a large petaled white, a double lilac, single and double rose, and a double variety that is prettily striped. The blossoms are crocus-like, three or four inches across, and each spathe has one to four flowers. The most

interesting autumn crocus is the checkered one (*Colchicum Parkinsoni*), which has beautifully tessellated blossoms—rosy-lilac squares on a white ground. The showiest species is *Colchicum speciosum* which often has blossoms six inches across, violet with a white eye varying almost to pure pink; and the variety *rubrum* is described as dark ruby crimson. The colchicums should be planted two or three inches deep and left alone until they crowd too much or show signs of deterioration when they should be divided in early July.

A yellow flower of the same sort is *Sternbergia lutea*, but the leaves of this appear with the flowers. It comes from Palestine and is supposed by some to be the lily-of-the-valley of the Bible. It should be planted about six inches deep in light soil and a sunny situation where the bulbs may ripen well. William Robinson says that imported bulbs are generally small and usually have to be grown one or two years before they are large enough to flower well.

The largest hardy autumn-blooming bulb is *Criminum Powelli*, which has pink lily-like flowers perhaps six to eight inches across and as many as eight in a bunch. The plant grows three or four feet high and kills down to the ground every winter but if the bulb is planted six inches deep and covered with a mound of ashes in winter to shed the rain it will prove hardy in the latitude of New York. It is a hybrid between the hardiest member of the genus (*C. longifolium*), and one of the showiest (*C. Moorei*).

LILY SPIKES FOUR FEET LONG

The giant lily (*Eremurus robustus*) is one of the stateliest hardy plants. It is a desert member of the lily family which actually throws up stalks taller than a man. The spikes proper are often four feet long and carry numerous small bell-shaped flowers. It is a costly plant because of the extraordinary character of its root, which consists of a number of long beet like roots arranged horizontally in a circle. They are so brittle that they must be packed with the utmost care. It takes about six or eight years to grow them from seed to



The Annunciation or Madonna lily (*L. candidum*) is the best hardy white lily. It blooms in June

the flowering size, and therefore roots that will flower in a year or two cost from two to four dollars. It is best to cover this plant with a mound of ashes in winter. Its one weak point is that it shoots up too early in the spring and is likely to get caught by the late frosts. The new shoots (which are like asparagus on a gigantic scale and burst tumultuously through the ground) should be covered with a box on frosty nights. After flowering the plants disappear, and therefore *eremurus* should be planted in a spot where a careless stroke of the hoe is not likely to ruin it.

THE FLORISTS' ANEMONE

The poppy anemone (*Anemone coronaria*) is a lovely old florists' flower which has some of the richest reds and blues to be found in the vegetable kingdom. I have never heard of any one in America who has made a success of them. Their culture is very peculiar. The best strains of these flowers are said to come from St. Brigid and Caen and from Nice. The "bulbs" are like nothing else in the heavens above nor the earth beneath. They are thin flat bodies, no two the same size or shape, and one never knows which side up to plant them. The clearest cultural directions are to be found in William Robinson's "The English Flower Garden," from which these points are taken. The best bloom is secured by September or October planting where this can be safely done. Single varieties are now commonly raised from seed sown in June. The plants are pricked out in Autumn and will flower the following season. The anemone flower has two distinct types of doubling. In some varieties it is the stamens which are petal-like and in others the pistils. Plant the bulbs two inches deep. The crowns, or points that will make the stems, are obtuse bodies often a shade darker in color than the surrounding skin and are generally in clusters near the centre.



The Easter lily can be flowered at Christmas, if the early arriving bulbs are bought now



THE RIGHT DOWN PRACTICAL SIDE OF GREENHOUSE BUILDING

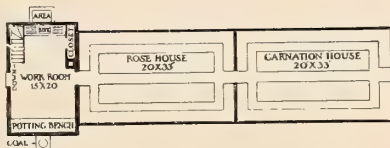
Take this greenhouse for general purposes; there is no better type than the full span house. The one here shown is a simple, attractive house of this character divided into two compartments, one being used for roses, the other for carnations. They could be used equally successfully for the cultivation of many other varieties of flowers, also for fruits or vegetables. A roomy and handily arranged workroom at the end, with the boiler and coal storage placed in the basement, is a very convenient adjunct. A house of this character can be readily extended in a direct line or wings can be joined at either side of the workroom.

There are many strong points about the U-Bar Construction for greenhouses that makes it by far the best, not only as a plant producing house but as best adaptable for the home grounds. The curved eave line, the aluminum finish of the interior, the absolute simplicity of the construction gives a house unmatched in attractiveness and adaptability. The extra wide spacing of the glass and great reduction of heavy supporting members makes a house as near actual outdoor conditions as is possible and still be indoors. There is no house its equal in plant productiveness.

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Situation III.

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Situation IV.

Sea Breeze is also the place where the Association is trying to provide Fresh Air for 20,000 others, many of whom are sick or at the breaking point, with no escape from dark, foul tenements and stifling streets.

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New York Association for Improving the Condition of the Poor

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Flower Seeds for Summer Sowing

THE best time to sow seeds of biennials and perennials is from the middle of July to the middle of August.

The seeds may be sown in the open ground, where the plants are to grow, but I prefer to sow them in a coldframe, because here much better care in the way of watering and shading can be given.

For soil, any good garden loam may be used, but a prepared seed soil will be better. Into the soil in the coldframe thoroughly



Oriental poppy (*Papaver orientale*). The flowers are red, orange, salmon or pale pink and sometimes as much as 6 inches across

work a 2-inch dressing of well decayed horse manure, and enough sand to make your soil porous. The amount will depend upon the condition of the soil.

Make the surface smooth and level with a rake, and take out any stones and lumps there may be in the top inch of soil.

In order that the seeds may be planted at a uniform depth I always use a marker, which may be made as follows: To a piece of 1-inch board, 4 inches wide, and as long as the frame is wide, tack down the middle a $\frac{1}{4}$ -inch square strip. This marker is pressed into the soil until the board touches the surface of the soil, and then carefully removed. This leaves a clean drill $\frac{1}{4}$ -inch wide and deep, in which to drop the seeds.

Do not sow the seeds too thick— $\frac{1}{4}$ of an

Contributions may be sent in through THE GARDEN MAGAZINE by using this blank:

Enclosed find \$_____ for Sea Breeze

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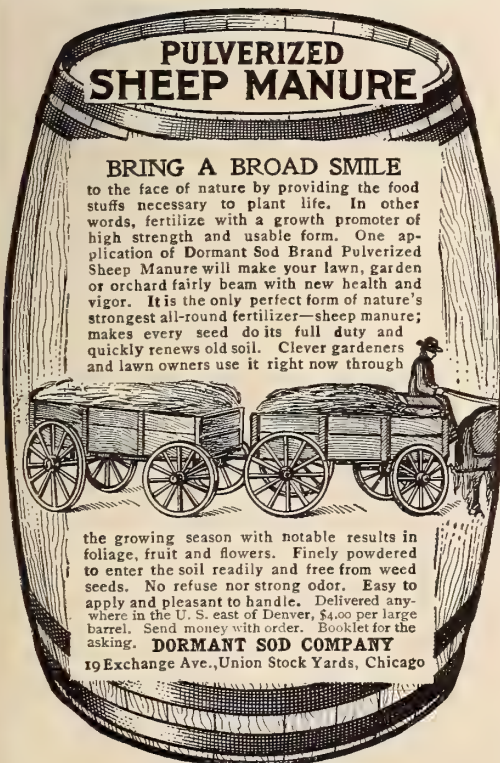
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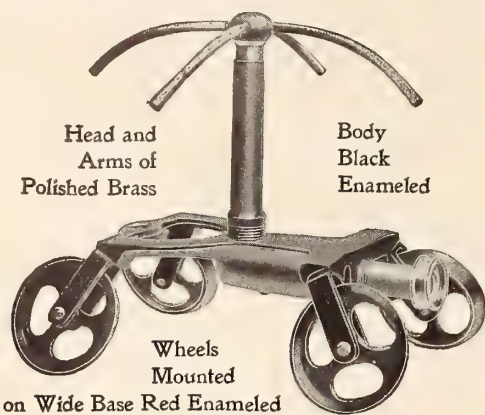
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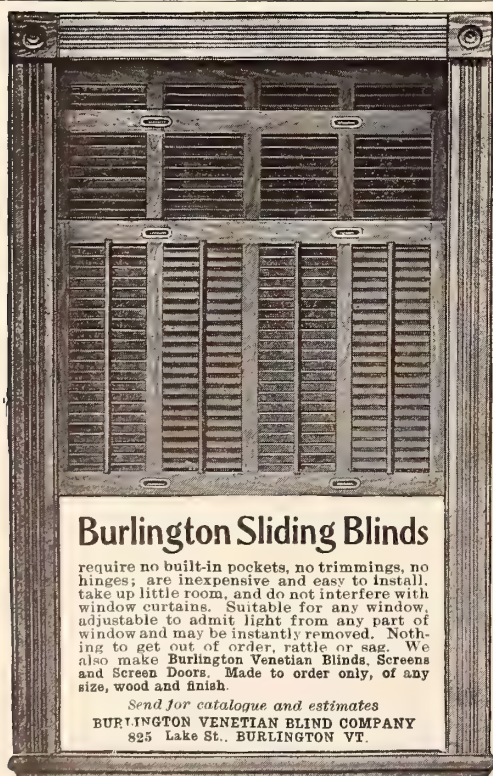
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inch apart is close enough. Cover the seeds by leveling the soil once more. Then firm and water it.

Shade is really necessary, and I prefer to put whitewashed sashes over the frame at this time, as a close atmosphere can be thus kept, which will save much watering.

As soon as seed leaves commence to show above ground, air should be admitted gradually. If you do not have sashes, sufficient protection from the sun can be secured by lath screens. These are made six feet long, and as wide as the laths are long. A space as wide as a lath should be left between each two laths.

As soon as the plants commence to crowd one another, which will be about three weeks after planting, transplant them to another position in the frame, or in the open where they are to grow. If in the frame, set them 3 to 4 inches apart. This will allow sufficient



Canterbury bell (*Campanula Medium*), blue, pink or white. An ideal plant for a rich well-drained soil in partial shade

room for all the growth the plants will make this fall. In the spring they can be transferred to their permanent place.

I much prefer to have my perennials pass the first winter in the coldframe, for here I can still give the young plants the best of care.

Have a pile of dry leaves at hand, to use as a winter covering for these plants, and when the ground once freezes hard, cover them two or three inches deep. A thin layer of salt hay, held in place by a few boards, or a few pine needles, will hold the leaves in place.

There is a large list of plants which may be started in this way. For spring bedding the pansies and English daisies are always started now and wintered in a coldframe. It is really necessary to do so in order that the plants shall winter in good condition.

Among the biennials which may be started

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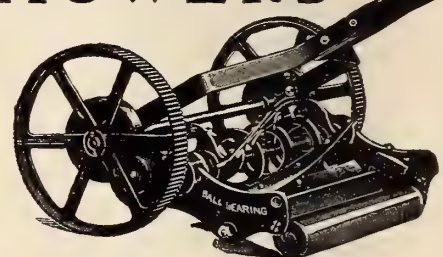
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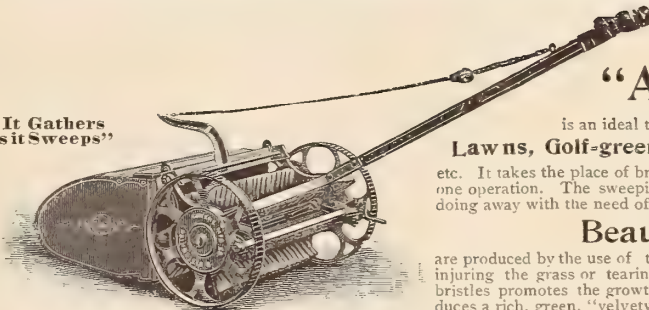
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MRS. ANNA BOTSFORD COMSTOCK has become the Secretary of **THE NATURE CLUB OF AMERICA**, and this fact alone is a guarantee of the authoritativeness of the work of the club. Mrs. Comstock is probably the most prominent and best equipped teacher of Nature Study in America. As director of the Home Nature Study Course of Cornell University, she conducts correspondence work for the teachers of New York State. Every month ten thousand copies of the Nature Leaflet which Mrs. Comstock edits in connection with this Correspondence Course are distributed among the teachers of New York.

In addition, Mrs. Comstock has regular classes in Nature Study in Cornell University, and she has taught both at Leland Stanford University, and at the University of California. Together with her husband, Prof. John Henry Comstock, Mrs. Comstock is author of "How to Know the Butterflies." She is author of "Ways of the Six Footed" and "How to Keep Bees."

The readers of *Country Life in America* who become members of "**THE NATURE CLUB**" will have the benefit of this vast experience of Mrs. Comstock in Nature Study work. In addition to the monthly course of study in the magazine itself, which will be a feature of the Club's work, any member may carry on a correspondence course in Nature Study directly with Mrs. Comstock.

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are the foxglove and Canterbury bells. These must be sown each year, because they die after flowering.

The foxgloves, particularly the common one, need sowing but once, because each fall, if a plant is allowed to go to seed, a large number of seedlings will be found about the base of the old plant.

With one exception, the foxgloves grow from two to four feet high; the exception is the rusty foxglove (*Digitalis ferruginea*), which grows four to six feet high. The flowers are tubular shaped, and are white, spotted with purple, or they may be red, gray, yellow, or purple, according to the



Monkshood or aconite (*Aconitum Napellus*) one of the best tall blue flowers, 3 to 4 feet high. The flowers vary to white. The leaves are poisonous and have been known to kill poultry

kind grown. The common foxglove is *Digitalis purpurea*.

The Canterbury bells are very beautiful. The most commonly grown is *Campanula Medium*, growing one to four feet high, and having large, inflated, bell-shaped flowers two inches long, and nearly as much across. There are hose-in-hose and cup-and-saucer varieties, (var. *calycanthema*) which come fairly true from seed.

Although a perennial, the Iceland poppy (*Papaver nudicaule*), will give better results if treated as a biennial, a new lot being started each fall, because the plants winter kill badly after a year or two. If sown in the

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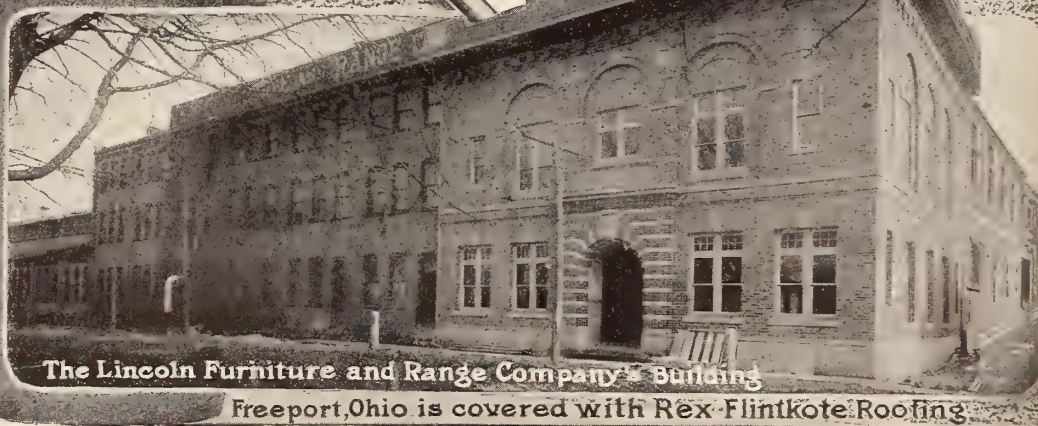
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open in March or April the Iceland poppy will flower the following fall, so if one makes two sowings a year, an almost continual supply of the very dainty yet showy flowers can be had all summer long.

The hollyhock (*Althaea rosea*), is a dear old-fashioned flower to which a lot of sentiment is attached. It has one drawback, the hollyhock disease, which so far no one seems to be able to control. It should, however, be grown, but as soon as it becomes diseased dig it up and burn it. It grows from four to six feet high, and bears a long spike of



The foxglove (*Digitalis purpurea*) is an old-fashioned and very dignified looking plant especially useful near buildings. Likes a rich, well-drained soil in partial shade or full sun

large flowers. It may be had in many colors and forms.

The two most beautiful yellow flowers of the garden are the tickseeds, *Coreopsis grandiflora* and *C. lanceolata*. The former has a solid yellow flower, while the latter has a brown eye. The flowers are 1 to 2½ inches in diameter, and are borne on long naked stems a foot long. They are very good for cutting. The plants are one to two feet high.

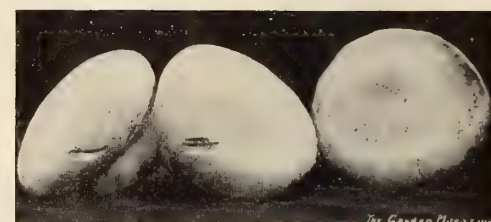
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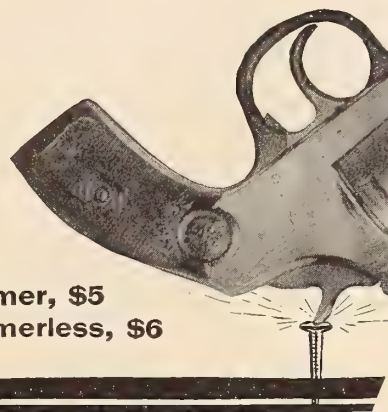
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COUNTRY LIFE
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FARMING



THE GARDEN
MAGAZINE

DOUBLEDAY, PAGE & CO. NEW YORK.

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Hardy Garden Flowers No. 7

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known in the trade as *G. grandiflora*) has a wealth of gorgeous yellow, red and bronze flowers three to four inches across, and sometimes even five inches. The cut flowers last well in water. It must be grown in a rich, light, well drained soil in a sunny situation. In a damp place it winter kills.

The cardinal flower (*Lobelia cardinalis*) and the great lobelia (*L. syphilitica*) are two beautiful plants for cool, shady places. The cardinal flower grows two to four feet high, bearing long spikes of intensely bright cardinal flowers; each flower is about one inch long. The great lobelia attains a height of three feet, and has spikes of pale blue flowers.

The Oriental poppy (*Papaver orientale*) bears mammoth cup-shaped crimson flowers measuring six inches across. Each petal has a big black spot at the base. It is a very hardy plant, and will thrive if given only half a chance. Another perennial poppy which closely resembles the Oriental poppy, and is said to flower earlier is *P. bracteatum*. The flowers of the two are identical.

The Sweet William (*Dianthus barbatus*) unlike many of the perennials, has a profusion of bloom the second year. The individual flowers are small, but are borne in large bunches, three or four inches across. The flowers vary in color from dark red to white, and are sweet scented.

New York.

W. CLARK.

A Cultural Guide to Hardy Orchids

The following summary is intended to show at a glance the relative value of the hardy orchids and how to grow them:

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These are supposed to be content with partial shade, leaf mold and moist (not damp) soil.

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Flower pink

The best hardy orchid

Showy lady's slipper

The largest flower, but hard to grow

Moccasin flower

Flowers yellow

Slipper $\frac{1}{2}$ to 2 in. long, pale yellow

Large yellow lady's slipper

Slipper $\frac{1}{2}$ to 1 $\frac{1}{4}$ in. long, bright yellow

Small yellow lady's slipper

Flowers white

The easiest orchid to grow

Eastern white lady's slipper

Large, fragrant: needs winter cover

Rocky Mountain white lady's slipper

2. The other types.

Fls. greenish white

Rattlesnake plantain

Fls. pinkish purple

Showy orchis

II.—SPECIES PREFERRING WET FEET

Flower yellow

Yellow-fringed orchis

Flowers white

Ladies' tresses

Flowers purple, large

Large purple-fringed orchis

Flowers purplish, small

Small purple-fringed orchis

III.—SPHAGNUM-LOVING SPECIES

These are all bulbous species about six inches high, with pinkish flowers and are supposed to prefer sphagnum, wet feet and full sunshine.

Flower like a lady's slipper

Calypso

Flower with a gaping mouth

Arethusa

Flowers with a short fringe

Pogonia

Flowers several, $\frac{1}{2}$ in. across

Grass pink

New York.

WILHELM MILLER.



LAWN HOSE

"THE KIND THAT LASTS"



This is the kind that you get when you buy hose bearing our name and brand. You can make a positive saving of 50 per cent or more in cost of Lawn Hose by buying the genuine

"BULL-FROG" BRAND

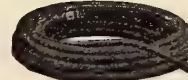
SEAMLESS TUBE.

Because "BULL-FROG" BRAND costs no more and lasts over twice as long as the old style lapped tube kind. Nine-tenths of all hose trouble is because of faulty seams. (See Cuts.)

SPECIAL OFFER:—To widely distribute "BULL-FROG" BRAND. We will, if your dealer does not handle it, ship you, upon receipt of price on 30 Days' Free Trial, 50-ft. $\frac{1}{2}$ -in. 3-ply with brass couplings and nozzle complete for \$7.50, express prepaid East of the Mississippi River and North of the Tennessee line; equalized beyond. Money back if not satisfied. **FREE!** Upon request valuable book on "Lawns, their making and care." Dealers should write and learn how they can increase their Lawn Hose business.

Established 1890. **The Toledo Rubber Co.** 417 Summit St. TOLEDO, O.

Reference any bank in Toledo.



This is the kind you no doubt have bought in the past.



EXTENSIVE COLLECTIONS

Pæonies

Iris } Japan
 } German
 } Siberian

Phloxes

Evergreens, specimens

Strawberries, pot grown

Send for Special Summer List, also our General Catalogue

THE ELM CITY NURSERY COMPANY

New Haven

Connecticut

Visitors always welcome at the nursery.

THE THOUSAND ISLANDS

will be more attractive than ever this season. The New York Central Lines Four-Track Series No. 10, "The St. Lawrence River from the Thousand Islands to the Saguenay" contains the finest map ever made of this region. Copy will be sent free, postpaid, on receipt of a two-cent stamp by George H. Daniels, Manager, General Advertising Department, Grand Central Station, New York.

THE



REACH THE THOUSAND
ISLANDS FROM EVERY
DIRECTION

C. F. DALY, Passenger Traffic Mgr., NEW YORK



THE WHEELOCK RUST-PROOF

Is the only guaranteed fencing. GALVANIZED AFTER WEAVING. The Wheelock Trellis, Flower Bed Guard, Lawn Fence, Lawn Guard, Tree Guard, etc. are economical and beautiful.

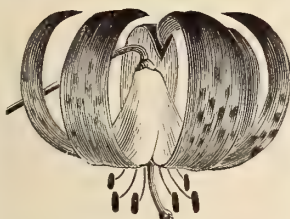
If your dealer has it not, send order to us.

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Large Catalogue on request.

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BACKED by fifty-five years of experience in Quality. For September planting we have absolutely the finest and most satisfactory offerings.

Your wants are realized precisely and accurately when you order from the Pioneer Mail Order Seed House.



Lilium Pardalimum

JAMES VICK'S SONS

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An Everyday Kind of Vacation

WHY not take a vacation every day or so—the kind of vacation that gets into your very being, making you forget the nag and drag end of things, filling your nature with a new enthusiasm, your arms with fragrant flowers and fruit? But, we are a bit ahead of our story. Do you know that the way we design and equip our greenhouses, makes them really delightful spots in which to care for your flower friends, to spend a few hours a week with growing plant life? Practical, convenient, cheery houses, where one can have, at a comparatively small expense, a health resort and a garden within half a stone's throw of your door step. A glass enclosed garden—a garden of roses—a bank of ferns—a veritable tropic of palms—or beds of the more prosy but delicious melon, cucumber or tomato.

LORD & BURNHAM CO.

Greenhouse Designers

and Manufacturers

1133 Broadway, Cor. 26th St., N. Y.

BOSTON BRANCH: 819 Tremont Building.

By all means, have a greenhouse—our kind—have a talk with us about it.

Send for Greenhouse Booklet.

Rudyard Kipling's Famous Books



Traffics and Discoveries. \$1.50
The Five Nations. Net, \$1.40. Postage, 14 cents
Just So Stories. Net, \$1.20. Postage, 12 cents
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CANNOT BE EQUALLED

Catalogue free

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The Conard & Jones Company

Growers of the "Best Roses in America"
Box P, West Grove, Pennsylvania

ARE YOU READY TO PLANT?

Let us reserve **HARDY EVERGREENS FOR AUGUST**

Our Catalogue gives

Sizes and Prices of all the Best Varieties of Fruit and Ornamentals

Peonies, Phlox and other old-fashioned FLOWERS FOR SEPTEMBER

Hyacinths, Tulips, Daffodils, Deciduous Trees, Shrubs and Hardy Roses for OCTOBER and NOVEMBER

ROSEDALE NURSERIES

Landscape Department, 63 Hamilton Place

S. G. HARRIS, M.S., Tarrytown, N.Y.



Water For Your Country Home

IF you live in the country there is a way for you to enjoy *all* the comforts and conveniences of a *city water supply* without a penny for water tax.

It is accomplished by the **Kewanee System**. With the **Kewanee System** you get even *more* than city service, because, in addition to every benefit the latter affords, you may have —*Soft water* in your bathroom and laundry.

The **Kewanee System** is easily explained; it consists simply of having a **Kewanee Pneumatic Tank** set in your cellar or buried in the ground.

The water from *your own well or cistern* is pumped into the **Kewanee Tank**.

From the tank the water is *delivered under pressure* to the laundry tubs, kitchen sink, bathrooms, outside hydrants or wherever wanted.

When the tank is half full of water the air which originally filled the entire space will be compressed into the upper half of it.

It is this pressure exerted on the water which delivers it to the plumbing fixtures and hydrants.

An average pressure of 40 pounds may be maintained under ordinary conditions. This will carry water to a height of 80 feet, thus affording *splendid fire protection*.

You see that the *method*, while perfectly simple, is based on a thoroughly *scientific* plan.

The **Kewanee Water Supply Company** was the first to *apply* this principle successfully in supplying water to country houses, and after *ten years of experience* the system has proved to be entirely *practical* and it is rapidly growing in favor.

Over 5,000 **Kewanee Outfits** now in use.

The old style elevated tanks are passing —Because they stand no show in competition with the modern, no-trouble system—the **Kewanee System**.

The old fashioned gravity system meant pumping water *up* in order to get it *down* again.

Now, to give the necessary pressure for fire protection and service, the elevated tank must be located on top of a tall tower. This is expensive, unsightly and unsafe.

The water freezes in winter, becomes warm and stagnant in summer, and repairs are a big item of expense.

The attic tank doesn't give sufficient pressure for fire protection.

Its weight is apt to crack the plastering, and when it leaks (as it is pretty *sure* to do) your house is flooded. Just one such expensive accident may cost you many times the price of a **Kewanee Outfit**.

—Which *cannot* flood the house, because the tank is resting on *solid ground* where it can do no damage.

The installation of a **Kewanee Pneumatic Water System** in your country home means

- Plenty of pure, fresh water,
- Cool water in the summer,
- No freezing water in winter,
- Absolute protection from fire,
- Decrease in insurance rates,
- A plant that will last a lifetime,
- No expensive repairs.

It solves the country water problem completely. The **Kewanee System** will take care of *all* your needs —for home, garden, lawn, stables, poultry houses, etc.

* * *

Our **Kewanee Outfits** are *complete*.

Not an engine only, which in itself cannot give you a water supply—nor a tank only, which is useless unless you have some form of pumping power—

But, we furnish the *whole thing*—a *complete system* of water supply.

Our engineering department is prepared to solve your water problem—no matter how difficult that problem may now appear.

Kewanee Outfits are made in sizes suited to the smallest cottage—or largest building—or group of buildings.

We guarantee every **Kewanee Outfit** to give *perfect service*.

Send for catalog No. 16 which gives names of users in your State—free if you mention this magazine.

Kewanee Water Supply Company, Drawer S, Kewanee, Ill.

Few Bugs in Clean Gardens

THERE is entirely too much of the so-called “hind sight” and far too little foresight in our warfare against the bugs. When in midsummer we suddenly find a crop being destroyed by hundreds of hungry caterpillars or beetles, we wonder where they came from and proceed to combat them when they have already partially ruined the crop. One of the worst contributory causes is the neglect to clear out the remains of the gathered crops leaving the stumps, stubble, or vines lying in the garden where they grew, or in piles, serenely indifferent to the fact that our insect enemies are thriving and increasing upon them.

There are many simple methods of effectually checking the increase of these insects and thus obviating the necessity for expensive remedial measures. In warfare against insects as against disease, we need more hygiene and less remedial treatment.

In the cabbage patch after the crop has been gathered, the stumps, which have sprouted out, will be found in the field where



Raising next year's insect pests. The dead and decaying vegetation left after gathering a crop furnishes food and winter protection for the insects. Clean up!

they grew or sometimes gathered into piles. The sprouts furnish ample food for the bugs during the balance of the season and form snug quarters in which the winter is safely passed. In these stumps or piles may be found the chrysalids of all the common cabbage caterpillars and the adult harlequin bugs so injurious in the South. Had the stumps been uprooted and piled as soon as the crop was gathered, all of these pests would have assembled upon the piles, which might then have been destroyed in the fall or early spring and thus caught the greater part of the insects.

The same principles apply to most of the pests of melons, cucumbers and squashes. Both the squash bug and striped cucumber beetle hibernate under the old vines and other rubbish always found in the melon patch, where they feed and breed unmolested

Mexican Palm Leaf Hat 50c



Hand woven by Mexicans in Mexico from palm fiber. Double weave, durable and light weight with colored design in brim. Retail at \$1.00, sent postpaid for 50c to introduce our Mexican hats and drawn work. Same hat plain, 40c; both for 75c. Large, medium and small sizes. Fine for fishing, camping, seashore and gardening. Hat booklet free.

The Francis E. Lester Co., Dept. J8, Mesilla Park, N. M.

Hardy Plants FOR Old Fashioned Flower Gardens

including Phloxes, Bell Flowers, Larkspurs, Poppies, Peonies, Iris, Garden Pinks, Day Lilies, etc. Also fine collection of novelties. Catalogue on application.

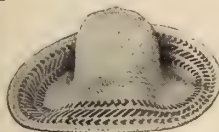
FREDERIC J. REA

Norwood, Mass.

Mexican Palm Leaf Hat, 50c.

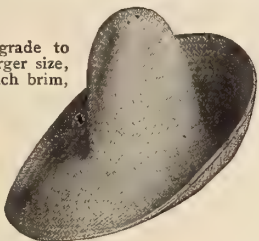
An ideal hat for fishing, camping, sea-shore and gardening.

No hat procurable at double our price is as suitable for the gardener, hunter, camper or fisherman as our genuine hand-woven Mexican Palm Leaf Hats. These are made by Mexicans in Mexico from strong palm fibre, especially for us and we unport them direct.



This hat is light weight, but very strong, with colored design woven in brim. Retail at \$1.00, sent prepaid for 50 cents as special offer. Same hat plain, 40 cents; both for 75 cents. All sizes; large, medium and small.

This hat is similar grade to above, but plain design, larger size, taller crown, and with 6 inch brim, yet weighs only 6 ounces. Regular \$1.50 value, our special price 75 cents prepaid. An ideal fisherman's hat. All sizes. Send for illustrated booklet of Mexican hats, FREE.

**Indian Swatiska Pin, 26c.**

These pins are solid silver, hand-hammered by Navajo Indians from coins. Genuine, popular, antique and pretty.



We offer various styles at greatly reduced prices. Swatiska Stick Pin, 3-8 inch plain, 26 cents; set with turquoise, 35 cents. Swatiska Brooch Pin, 9-16 inch, plain, 40 cents; set with turquoise, 50 cents. Swatiska Ring, all sizes, plain, 35 cents; set with turquoise, 45 cents. For other Swatiska articles, send for booklet.

Genuine Coral Necklaces, 18c.

Special Half Price Sale.

Warranted genuine and made from the best imported rich color coral. We offer for limited time the following sizes at half



regular prices: 14 inch Necklace, genuine twig or rough coral with good clasp, regular 40 cents for 18 cents. Same thing in Chain 56 inches long, 42 cents. 14 inch Necklace of genuine coral beads, with good clasp, regular 60 cents, for 28 cents. Same thing in 56 inch Chain, 84 cents.

Indian Palm Basket, Free

This basket sent free with all orders amounting to \$2.50 or more—from this advertisement. It is genuine hand woven from palm fibre by Indians, 5 to 6 inches high, prettily colored, useful and ornamental. Warranted genuine. Sold in curio stores at 50 cents. Sent alone if desired for 20 cents.



To all persons ordering from this advertisement, a copy of our new 75-page catalogue of Indian Rugs, Mexican Drawn-work, and other native handicraft, ready September 1st, will be sent free; catalogue to others for 4 cents to pay postage.

THE FRANCIS E. LESTER COMPANY

Department J-8

Largest Retailers of Indian and Mexican Handicraft in the World
MESILLA PARK, N. M.

GLADIOLI

Plant in July and August

VIRGINIA—The most rare and beautiful of all gladioli is included in the "DIAMOND" collection, consisting of one dozen bulbs of the gladioli of all the colors of the rainbow and the choicest varieties known of this the "EMPEROR OF FLOWERS." Price \$5.00 for this collection. Send for catalogue.

For the "Diamond Selection" . . . \$5.00 per doz.
For the "Golden Selection" . . . \$1.00 per doz.
For the "Silver Selection" . . . 50c. per doz.
For all Three Selections . . . \$6.00 one doz. each

STEPHEN FISH SHERMAN

Proprietor of Willow Bank Nursery, Newark, Wayne Co., New York.

Evergreens Grown in New England

Are better and hardier than those grown further South. August and September are the best months for planting, the percentage of loss being less than in Spring or late Fall.

Blue Spruce, Concolor Firs, Hemlocks, White, Austrian and Scotch Pines, Retinosporas, Thuyas, Junipers and many other rare conifers in all sizes and quantities at lowest prices considering the quality.

HARDY PERENNIALS

We have the largest and most varied stock of field and pot-grown plants in America.

We also offer pot-grown Strawberries, Dutch Bulbs and Lilies.

PLANTING SUGGESTIONS and detailed advice sent by mail without expense to our customers, and we solicit correspondence on all questions relating to selection or arrangement of Plants.

TWENTY YEARS EXPERIENCE in this work enables us to give the most valuable advice both as to economy and best results.

Summer Catalogue of Evergreens now ready.

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SHADY HILL NURSERY COMPANY

Bedford, Massachusetts

For Immediate Planting

We offer

Rare and Choice Perennials, Iris, Peonies, Lilies, Fall-flowering Crocuses and Strawberries.

Our mid-summer catalogue mailed free on application.

The most interesting bulb catalogue published in the United States, will be ready August 15th. Apply at once.

W. W. RAWSON & CO.

High Grade Bulbs, Seeds and Plants,

5 Union Street,

BOSTON, MASS.

**BONORA**

Showing the result of Bonora on a Bogonia. The plant to the left was fertilized with a good commercial fertilizer, the one to the right with Bonora. Note the great difference in size and luxuriance.

THIS new wonderful discovery, considered by expert gardeners the greatest fertilizer in the world, will make your roses bloom, give all your plants active growth, will make your sun-baked lawn look like velvet, and your shrubbery will have new life and withstand the cold winter. Use "BONORA" on your late vegetables, it will mature them two to three weeks earlier, and double the crop. We can show many endorsements from lovers of beautiful flowers. Those that have not tried it will do well to order at once. Have you sickly plants? Do your rose bushes look sickly? Have you brown and sear spots on your lawn? Are you preparing your house plants for the Winter? If so, order "BONORA." "BONORA" has supplied a long felt want.

The chemist of the **BONORA CHEMICAL COMPANY** is now in England, placing agencies and depots for the enormous orders that are going to England and the Continent. This month's mail brought us orders from Tyrol, Austria; Philippine Islands, Hawaiian Islands, all parts of Canada, Porto Rico, Cuba, Mexico, South America and Alaska. Order "BONORA" at once.

Put up in the following packages:

1, 2, 5 and 10 gallon kegs,	per gallon,	\$2.00
Half Barrels (cont. 25 gals.)	" "	1.75
Barrels (" 50 ")	" "	1.50

One gallon makes 100 gallons.

Put up in dry form in all size packages as follows:

1 lb.	"	28 gallons, post paid	.65
5 lbs.	"	140 "	\$ 2.50
10 lbs.	"	280 "	4.75
50 lbs.	"	1120 "	20.00
100 lbs.	"	2800 "	37.50
200 lbs.	"	5600 "	70.00

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PEDIGREE POT GROWN STRAWBERRY PLANTS

Our plants are grown with the greatest care, and the healthy, strong condition they are in when shipped by us will give a full crop next year if plants are set out before September. Order now, early orders get the best selection of stock.

VERY EARLY VARIETIES: Fairfield, Success, Lady Thompson, Climax

MID-SEASON VARIETIES: Wm. Belt, McKinley, New York, Oom Paul, Nick Ohmer, Glen Mary, Sample, Marshall, Bismarck, Senator Dunlop, Warfield, Clyde, Bubach.

LATE VARIETIES: Gandy, Lester Lovett, Arline, Aroma, Joe, Late Champion.

PRICE

Per doz., 75 cents; per 100, \$3.50; per 1,000, \$25.00

Catalogue and Cultural directions mailed free.

STUMPP & WALTER CO.

50 Barclay St., New York.



Native Perennials for the Wild Garden

JAPANESE IRISES,
ROSES AND HERBACEOUS PLANTS
FOR FALL PLANTING.

Orders should be sent in early.

SHATEMUC NURSERIES

Barrytown, Dutchess County, N. Y.



"Eureka" Weed Killer.

Saves Weeding. Keeps Paths, etc., clear without disturbing or staining the gravel.

Soluble Powder, readily mixed and applied. Large Size Tin, enough for 100 square yards, 75 cents each. Special prices to Cemeteries and buyers in large quantities. Full directions with each tin.

VAUGHAN'S SEED STORE

CHICAGO, 84-86 Randolph St.

NEW YORK, 14 Barclay St.

until frost. Rake up the vines and burn them soon after the crop is gathered.

Standing corn stalks, so commonly seen in the Middle and Southern States, form an ideal winter home for all the insect enemies of corn and other crops. The corn stalk borer passes the winter in its cell in the crown of the plant and underneath the bases of the leaves and in the hollow stalk are chinch bugs and other corn insects. Many people have assured me that where they had plowed out, raked up and burned the corn stubble, they had been comparatively immune from many of these pests which seriously injured neighboring crops.

Even the well known Colorado potato beetle passes the winter under the old potato vines left lying in the fields. Stir around the loose surface soil at the base of an old vine in any field where the beetles have been numerous and you will probably find from one to a half dozen of them curled up for their long winter's sleep.

In the orchard most of the fallen apples are due to the codlin moth caterpillar and the apple maggot or "railroad" worm, which will mature if the fallen fruits are not destroyed. From the fallen plums, which its injury has caused to drop, the grub of the plum curculio emerges when full grown, and enters the earth to pass the winter. Hogs and sheep are therefore of great value in an orchard, but if these are not available, see to it that all fallen fruit is destroyed and leave none on the trees, even though it is valueless, upon which insects may feed and fungus diseases develop.

E. DWIGHT SANDERSON.

Entomologist N. H. Experiment Station.



Spring Wild Flowers. The Wild Flowers of Early Summer, etc. The "A" Company, Box 846, Philadelphia, Pa.

The card index idea applied to the collection of wild flowers. Each series comprises about fifteen folders into which you are to put a pressed specimen. The folders are 4 x 7 inches, and each one contains a picture of a flower, with a full and interesting description, and blanks in which you are to record where and when you find each flower. It is planned to cover all the important flowers in eight series, each of which costs twenty-five cents. It is the most ingenious scheme of the kind we have ever seen, and in our opinion is worth twice what is asked for it, but such devices, however, rarely achieve great popularity. Being neither books nor stationery in the ordinary sense, they flow poorly along the regular trade channels.

Pearline
Pleases
Exact
Housekeepers

PRESERVE THE COLORS and Freshness of Dainty and Delicate Summer Garments by regular use of

Pearline

THINK OF THE DAMAGE Bar Soap and Washboard do in a single wash—then remember that PEARLINE cleanser through SOAKING and Perfect RINSING—WITHOUT RUBBING.

Pearline saves colors and fabrics

Don't Buy
Peonies
until you have seen

The Peony Blue Book

(Ready Aug. 15th)

It's worth writing and waiting for.

Mailed on request

G. H. PETERSON

Rose and Peony Specialist

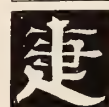
FAIR LAWN, NEW JERSEY

Gardeners Supplied

High-class men, with good records, can be obtained at **VAUGHAN'S SEED STORE**, 14 Barclay Street, New York City. No fee. 84 Randolph Street, Chicago.

Competent Gardeners

The comforts and products of a country home are increased by employing a competent gardener; if you want to engage one, write to us. Please give particulars regarding place and say whether married or single man is wanted. We have been supplying them for years to the best people everywhere. No fee asked. **PETER HENDERSON & CO.**, Seedsmen and Florists, 35 and 37 Cortlandt Street, New York City.



Japanese Bamboo Stakes

Durable year to year. Indispensable for tying Lilies, Roses, Chrysanthemums, Dahlias.

3 to 4 feet stakes, 100 for 75 cents; 1000 for \$4.00
6 feet stakes, 100 for \$1.00; 1000 for \$6.00
(25 at 100 rate; 250 at 1000 rate)

Address **H. H. BERGER & CO.**, 47 Barclay St., New York



Keep Your Drives Clean.

Don't Dig Weeds



Kill them with THISTLEINE. Spray the walks, driveways and gutters with THISTLEINE. ONE SPRAYING WILL KEEP THEM FREE FROM WEEDS AND GRASS THE ENTIRE SEASON. Kills Dandelions, Burdock and Canada Thistles.

5-POUND CAN OF THISTLEINE will make sufficient solution TO SPRAY $\frac{1}{4}$ OF AN ACRE.

Price, \$2.00. If your dealer doesn't keep it, send money direct to LINDGREN CHEMICAL CO., 26 Scribner St., Grand Rapids, Mich.

Used for four years by city of Grand Rapids and officially endorsed.

A Complete Manual of House Building in the Country

THE COUNTRY HOUSE

BY
CHARLES EDW.
HOOPER

THIS volume gives competently and in detail, yet without technicalities, all the information necessary in the building of a country house.

Its practical value is unlimited. 380 illustrations. Net, \$3.00. (Postage, 30 cents.)

COUNTRY LIFE
IN AMERICA



THE WORLD'S WORK
FARMING



THE GARDEN
MAGAZINE

DOUBLEDAY PAGE & CO.

133-135-137 EAST 16TH STREET, NEW YORK

H AND C



THE UNIT GREENHOUSE

Just what you have been wanting—wishing for and hoping some day you might get.

There is now no need of waiting until you have saved enough for a large greenhouse.

Our UNIT system of greenhouse building makes it possible for you to start right away—begin with a small single compartment house this summer, add another UNIT section or two next spring—more next fall and so on just as you can afford it—the same as you would build up a sectional bookcase. These UNIT Greenhouses are real, practical houses built on precisely the same principles and forms of construction as our largest buildings—contain every improvement—the only difference being that they are so planned as to be added to indefinitely.

"How to Get Started with a Snug Little Greenhouse" tells all about our UNIT Greenhouses. Send the five cents in stamps for it before you forget, and when you write say you want Edition U.

HITCHINGS AND COMPANY
Greenhouse Designers and Builders
Manufacturers of Heating and Ventilating Apparatus
1170 BROADWAY, NEW YORK

H AND C

HONEY

Delicious To Eat Profitable To Sell

Nothing we eat has sweeter recollections of genuine pleasure than "honey and the honey-comb." Nothing is easier to sell to all classes of people than a nice, smooth, clean section of white or golden-tinted honey. Bee-keeping is not hard to learn. It is delightfully fascinating. Moreover it is profitable. There are scores of people who keep bees and are successful. You can be too.

"A B C of Bee-Culture"—The Great Bee-Keeper's Guide—the foremost authority—is the book you should get first. Costs \$1.20 postpaid or \$1 with goods. This book tells all the "ins and outs" of the bee-business, reveals the secrets. It is full of pictures—550 of them—tells how to construct home-made hives—makes bee-keeping simple to understand. After reading this get one of

Root's Bee and Honey Outfits

It consists of a full colony of bees, hives, gloves, veil, smoker, bee-hat and full directions—for raising bees and getting honey.

"Gleanings In Bee-Culture" 6 mos. 25c

is the foremost authority on current happenings in "beedom." Comes every 15 days full of good things from every land. It tells how to sell your honey so you'll make most profit. Subscription, a dollar a year. If you only want to try it to see how good it is, our special Beginners' Offer is.....6 months for 25c. Write us—ask questions—we gladly answer them all.

THE A. I. ROOT COMPANY,
Medina, Ohio. Chicago, Ill. Philadelphia, Pa.
Washington, D. C. St. Paul, Minn. Syracuse, N. Y. Mechanic Falls, Maine.



DAINTY FLOWERS FROM THE WOODLAND

The Hardy Wild Ferns and Flowers of New England satisfy the want for something to grow in dark shady places where the hardy garden plants will not thrive. They are naturally adapted for beautifying the dark corner by the porch, the shaded wall or hedge, the shaded hillside, wet places in both open sun and deep shade. The brilliant Lobelias and dainty Sentians take to their home along the moist mossy bank. Also

HARDY ORCHIDS

as mentioned in the article on Hardy Orchids in this issue of THE GARDEN MAGAZINE. These orchids give uniqueness to the wild garden, and while some of them are difficult to grow in cultivation, others, like the large yellow and white lady's slippers, *orchis spectabilis* and the like, transplant and thrive as easily as ferns.

A garden of this order will delight you with the charm of its unfolding ferns and delicate woodland flowers, bringing the freshness of the woods and delight of the meadows, adding another charm to your home.

We have been studying and growing this class of plants for 25 years and shall be glad to help you in your selection.

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Plant Evergreens in August

THE planting of evergreen trees is governed by conditions quite different from those relating to deciduous trees. As leaves are on the tree at all times, there is a constant demand on the roots to supply water to the top, and they can do this best when the soil is warm, and when growth is being made.

Therefore planting is done a full month before the dry heat of summer begins, or the winter cold arrives. May and August are the two best possible months.

The roots of coniferous evergreens are resinous, and if they ever become dry or chilled in moving, they never recover, and the tree dies; therefore the greatest care must be taken from the time the plant is taken from the soil until it is put in its new position, to keep the roots from drying out.

When taken from the ground, the roots should be at once puddled, that is dipped into a mixture of clay and water about the consistency of cream. This will give a coating of earth, and will largely check drying out. Wrap around the ball of earth some damp sacking. This is what the good nurserymen do when you buy of them. It costs a little more, perhaps, but it more than pays for the time and trouble.

HOW TO PLANT

Dig the hole larger than the ball, and take out any stones that there may have been in the soil. Loosen up with a pick the hard soil in the bottom of the hole, and throw in the stones, for drainage. When ready to put the tree in the hole, remove the wrapping, examine the roots, to see if any of them have been injured in digging or shipping. If so, carefully trim, making a clean, square cut from the inner side of the root.

I have found it good practice to partially fill the hole with soil after the plant has been set, then to take hold of the stem and lift the plant up and down an inch two or three times. This works the soil in among the loose roots. Give a good watering, to complete the packing of the soil among the fine roots.

Now finish filling up the hole, and make the soil firm by tramping. After the tree is set, give a very thorough watering, having first made an embankment around the tree, to hold the water. Give at least three gallons to a plant two feet high.

Finally, mulch the soil about the tree, so as to keep the moisture in the soil; use straw or litter six or eight inches deep. There is little else that can be done to induce the plant to grow, unless it is syringing, which I believe it is wise to do daily.

New York.

P. M.



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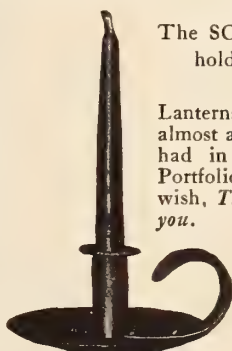
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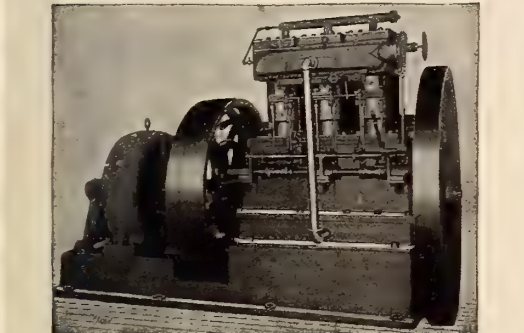
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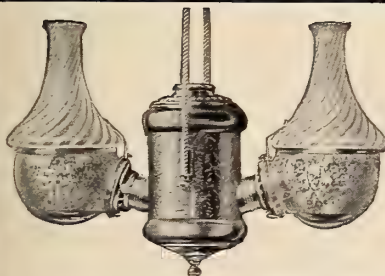
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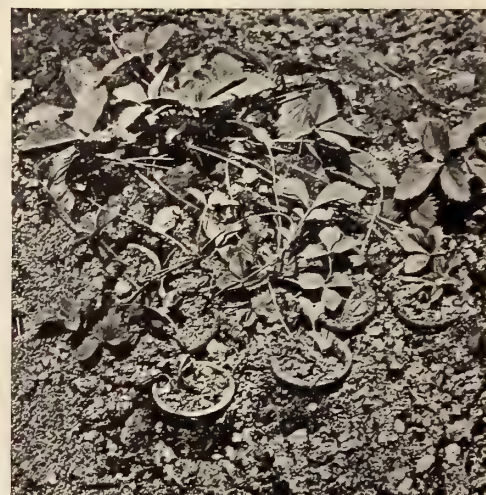
SAN FRANCISCO

Plant Pot-grown Strawberries in August

IF YOU do not have a strawberry bed in your garden and want one, August is a good time to start it, provided you plant pot-grown plants.

These pot-grown plants are runners which were rooted in pots early in the season.

You could not use at this season plants which had not been pot-grown because the roots would be so badly damaged in transplanting that they could not furnish the plant with the amount of water which it would de-



Strawberry runners rooted in pots, and moved in August may be fruited next spring

mand. That kind of plant, known as "layer plants" may be set out in September, but they would not give you any fruit next spring under ordinary cultivation while pot-grown plants set out in August will bear next spring.

My bed was 10 x 20 ft., and I grew 100 plants. The soil was a heavy clay into which I thoroughly worked a dressing several inches in thickness, of coal ashes, and half a ton of manure, before setting the plants. As soon as the ground froze, I spread another half ton of manure over the bed as a mulch.

The following spring, as soon as the first leaves showed above the mulch, I pulled the manure away from the crowns of the plants, and worked it into the soil. That little bed bore more strawberries than my family of three could eat fresh, so we were able to can some besides giving away a lot.

New Jersey.

T. B.

The Californian's Reminder

SOW pansies and stocks, for winter bloom-
ing, in well pulverized soil. Sow seeds of cineraria, pinks of all kinds, petunia, primula, salvia and verbenas. All seeds sown must be carefully shaded and watered, as this is one of our hottest months. Cinerarias and primulas need the best of care from sowing until plants are an inch or two high.

August is our harvest month. This is a good time to plant potatoes for a late crop.

It is in order to plant during August: Beets, cabbage, cauliflower, celery, carrot, lettuce, onion, parsnip, peas and turnip. Sow cucumber and eggplant for winter crops.

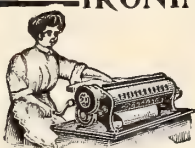
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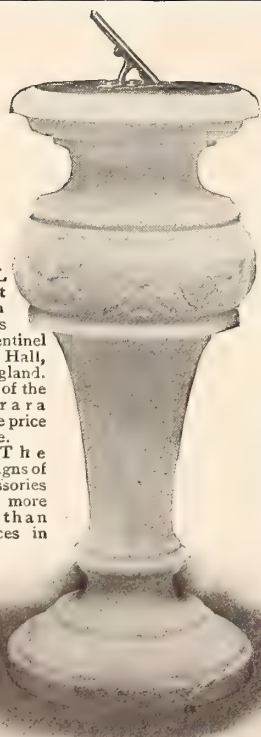
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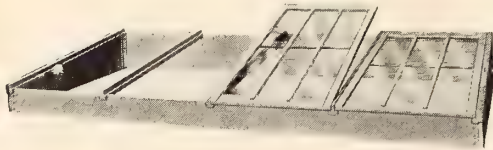
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A four-sash frame is a good number to start with, and gives you a chance to run two sash as a cold frame and two as a hot bed by simply putting in an inexpensive partition

How to Carry Your Garden Right Through to Christmas

DO IT with cold frames, or, if you like, grow things in them all winter through. Set them right up now in a southerly exposure, with protection at the north. Plant direct from seed with lettuce, Swiss chard greens, radishes, pepper grass, and transplant two or three bunches of parsley—leave a space for some violets and a few pansies.

Take lettuce for an example: Let's figure out what can be done with planting a two-sash frame 6 x 6 feet, with eight rows each way—64 plants in all, yielding sufficient for a small family for a month at the rate of two heads a day—two big, solid, crispy heads. Here's how it figures out: 64 heads at 40c. per lb. or 10c. a head would cost you \$6.40 if bought of the grocer—nearly as much as the cost of the two sashes.

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If you want to know just what there is in this cold frame question, then send for our booklet, "Two P's," on the pleasure and profit of cold frames—it tells it in a chatty, easy to understand way—has a planting table suggesting things to plant, time they take to grow, etc. You'll find it good, interesting reading. It's sent free.

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How to Winter Bees
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The Enemies and Diseases of Bees
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Honey Plants
Bee-Keepers and Keeping
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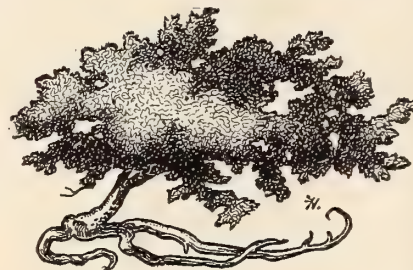


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SUGGESTIONS



More Garden Problems That Need Solving

[Note. In the November number, page 180, the January number, page 282, and the May number, page 236, we mentioned fifty-two problems which would make delightful studies for amateurs. Here are some more.

In this department we offer \$5 or more for the best narrative of problems worked out. We cannot award these prizes for suggestions of things to be done by someone else; each idea must have been worked out by the writer. Crowd all the facts and figures into 300 or 400 words if possible. Photographs must accompany the manuscript.]

53. What labor-saving devices have you invented?
54. How did you work up a big stock of your favorite plant?
55. What is the best kind of garden note book or diary?
56. Can you furnish all the important dates necessary for your garden work?
57. Can a vegetable garden yield at the rate of four cents a square foot? (See January, 1906, page 268.)
58. What is the most satisfactory kind of garden walk and edging?
59. Who has a blue border?
60. Who has saved a tree for his community that was threatened with destruction?
61. What plants are ruined by salt spray and which ones can stand it?
62. Who has successfully grown any Colorado or Rocky Mountain flowers outside of that region?
63. Who has raised California bulbs east of California?
64. Who has had success with hardy plants from Oregon, Washington, Arizona, New Mexico?
65. Who has grown seakale in America?
66. Who can always control the blue hydrangea?
67. Who will plant 100 white lilies by his grape arbor in order to secure the magnificent and permanent effect pictured in William Robinson's English Flower Garden?
68. Who has raised orchids successfully in a living-room?
69. Who will grow all the varieties of popcorn and report on them for us? (Three are not many.)
70. Who knows how to raise better sweet potatoes in the North than you can buy?
71. Who knows which perennials should be divided every year?
72. What laborer will send an account of his cottage garden?
73. Several species of the flax are catalogued by seedsmen. Is there enough difference between them to make it an object to grow them all?
74. Who has grown musk from seed?

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CONTENTS

SEPTEMBER, 1906

COVER DESIGN—Pink Day-blooming Water-lilies (*Nymphaea Maritima*, var. *rosea*).

	PAGE		PAGE
THE GARDENER'S REMINDER	57	EASILY MADE PICKLES	76
ALL THE BEECHES WORTH GROWING - <i>Louis Harman Pect</i>	58	CANNING AND COOKING TOMATOES	78
Photographs by H. E. Angell, the author, and others		PLANT PEONIES IN "SEPTEMBER"	80
GROWING WINTER SALADS IN A "PIT" - <i>Frank H. Presby</i>	61	THE CALIFORNIAN'S REMINDER	80
QUALITY TOMATOES FOR THE HOME GARDEN		FOUR INSECT PESTS THAT ARE EASILY KILLED NOW	
<i>L. and E. M. Barron</i>	62	<i>E. D. Sanderson</i>	82
Photographs by H. E. Angell and others		HOW TO KEEP CUT FLOWERS	84
WINTER FLOWERS IN A PIAZZA CONSERVATORY		Photograph by E. E. Willcox	
<i>M. K. Farrand</i>	64	KEY TO THE ORNAMENTAL BEECHES	86
Photographs by H. E. Angell		PERSONAL EXPERIENCES	88
MAKING MORE AND BETTER FRUIT TREES - <i>S. W. Fletcher</i>	67	A DELIGHTFUL WINTER BEVERAGE	88
Photographs by the author		A QUICK WAY TO COOK SPINACH	90
WATER-LILIES FOR THE BUSINESS MAN - <i>Henry S. Conard</i>	70	GARDEN PUBLICATIONS	90
Photographs by A. A. Coult and others		ANSWERS TO QUERIES	92
A RARE EARLY LILY GROWING TEN FEET HIGH - <i>E. V. W.</i>	72		
Photograph by Henry Troth			
A GARDEN OF PINK FLOWERS - <i>Helen R. Albce</i>	74		
Photographs by Vermont Experiment Station, N. R. Graves, and others			

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The Garden Magazine

VOL. IV.—No. 2
PUBLISHED MONTHLY

SEPTEMBER, 1906

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A Month for Forethought and Action

EARLY frost may be expected about the middle of September and after that a period of glorious mild weather, lasting sometimes for several weeks—the “Indian summer.” It’s worth while to make some effort to preserve the best early and tender plants from this advance guard of winter. The floral wreath of a garden that has been saved from the first sharp touch of cold seems especially gratifying. Study your note book, and the weather records of the region, to ascertain the probable date of this first frost.

Expect frost when with a comparatively low temperature late in the afternoon, the sky is clear toward the evening of a still September day, and the air has a fresh, crisp feeling.

It is a simple matter to give plants slight protection: cover with cheese-cloth, branches of trees, or old newspapers.

In small enclosed or sheltered gardens, placing several shallow pans of water about the garden, or making a smudge fire, will ward off frost.

BUY BULBS IN SEPTEMBER

This is a month of many possibilities that most people neglect at the time. Do you want something a little out of the way, but still quite easy to grow? Buy Star of Bethlehem (*Ornithogalum umbellatum*), for naturalizing in the meadow or wild garden. It flowers in June.

Other hardy bulbs for present planting include all the Dutch bulbs—tulips, hyacinths, crocuses, scillas, etc. Dog’s-tooth-violet, lily-of-the-valley, and crown imperial should be planted this month; also lily of the valley is best planted now, because it starts to grow so early in the spring.

The easiest way of growing flowers for Christmas is by planting some of the “cape” bulbs before the end of September. Place your order at once, and the dealer will ship the bulbs as soon as the supplies reach him. The rule of “first come, first served” is

rigidly followed by the seed and bulb trade.

The bulbs needing “cape” treatment include Freesia, ixia, oxalis, sparaxis, Brodiaea, ranunculus, anemone, *Ornithogalum Arabicum*, Lachenalia, camassia.

Remember the rules:

I. Dutch bulbs must be buried in the ground, or kept in a dark place, to induce a strong root growth, before they make any top growth. The best way is to bury them outdoors until about Christmas, covered with ashes or soil about a foot deep, and a layer of litter over that, to keep out frost. At Christmas, or later, bring the boxes into heat.

II. Cape bulbs must not be buried. Start them in a cool but light place. A deep cold-frame, or pit, from which the frost is kept out, is the proper place for them. Plant as soon as received, in flats or shallow pans, and leave outdoors until the middle of the month, when they must be put under cover away from frost—do this earlier if they show growth above the soil.

SOW THESE SEEDS

In coldframes: Cabbage and cauliflower for spring planting; spinach for Christmas dinner; lettuce and radishes for use in October and November.

In drills in the open: Chicory, chervil, endive, radish, lettuce (before the roth). Corn salad sown now will give a welcome fresh green salad before the snow clears off in spring. Spinach can be sown in the open for earliest crop next spring.

By far the best sweet peas are raised from seeds sown in late September. Sow opium poppies outside for flowers in June.

HAVE YOU AN IDLE SHED?

An old outbuilding, shed, or disused stable or horse stall can be turned to good account as a mushroom house. Begin collecting the heating material (fresh, clean horse manure) during August and September. Mushrooms can be ready at Christmas from beds spawned by October 15th. As the droppings are collected, spread out thinly under cover, to dry, turning the whole mass when additions are made. If the season is damp, add about one-fourth its bulk of clean garden loam. It must not be allowed to burn, but the rank heat must be dissipated before the beds are made up in October.

A bed measuring 6 x 6 ft. will supply mushrooms for a family of six. Use good fresh spawn.

STOCK THE GREENHOUSE

By the middle of the month get cuttings of bedding plants into the propagating benches. Take only the short, top growth of

coleus, geranium, heliotrope, lantana, so as not to injure the appearance of the beds. These cuttings will root at once, and stock may be further increased according to needs during the winter.

Buy Indian, Ghent and mollis azaleas for forcing for Christmas and Easter bloom.

Sow seeds of cineraria, calceolaria, and cyclamen.

Look over the heating pipes, boiler, valves and all fittings, to see that everything is in working order before it is really needed. Replace all broken glass in greenhouse or coldframes.

KEEP THE BORDERS TIDY

Keep up your interest in the work of the garden. Never relax attention to the hardy border; cut off all flower seeds; don’t let seed form unless you want it. Cut out all weeds, but do not cultivate the soil, for the plants are preparing for their winter’s rest. Begin mulching lightly about the 25th of the month, not before. Make new borders, and rearrange old ones. September is the ideal month for planting out herbaceous stock. The American Peony Society advises that peonies be moved now, in preference to any other time of year.

Divide perennial phlox, golden glow, peonies, and other hardy herbaceous plants that have done flowering.

Keep the border clear of all rubbish that might harbor insects.

Dahlias, cannas, elephant ears and gladiolus can be lifted after the frost has cut their tops, but they may just as well be left till next month, except in the North. Lift carefully with a fork, and spread out in an airy place to dry off. Then shake off the soil, and store all (except dahlia roots) in bags or baskets in a dry, cool cellar or closet free from frost. Dahlias are best stored in sand, in coal ashes, or earth, in a place where they do not freeze, and have sufficient moisture to keep them from shriveling.

Plant out currants and gooseberries. No home garden is too small for these, and they yield better in proportion to their space than any other fruits. Make cuttings of any specially prolific plant. Now is the time for making grape cuttings, too.

Prune the raspberry and blackberry bushes early in the month. Remove all the old wood—that which bore fruit this year.

Trees and bush fruits may be planted if the ground has been well prepared, but if land is poorly drained, do not plant in the fall. It is better to plant currants and gooseberries now than in the spring.

Begin now to drain, plow, and prepare any ground where a lawn is to be made in the spring or for seeding in winter.



The cut-leaved form of the European beech is a very decorative tree. The feathery, finely cut foliage gives a remarkable effect of lightness

Typical specimens of the European beech grown in the open; low branching and round head. Though a large tree, it is not a heavy mass

All the Beeches Worth Growing—By Louis Harman Peet New York

AN ATTEMPT TO ANALYZE THE SPECIAL HORTICULTURAL MERITS OF THE ONE AMERICAN TREE AND THE FOURTEEN FORMS OF THE EUROPEAN SPECIES—THE DISTINCTIONS AND ADAPTATIONS OF THE DIFFERENT COPPER AND CRIMSON FOLIAGED FORMS, WITH SUGGESTIONS FOR THEIR PLANTING

Article No. X in the "Little Monographs" series

AS ORNAMENTAL trees the beeches attract attention primarily on account of their dignity of form and peculiarly "clean" appearance; they give ample and spreading shade; the leaves are remarkably free from the insect pests, and they can, generally, be readily transplanted. They thrive best in a rich, deep, sandy loam, but will grow well in any ordinary soil. The trees attain a height of 80 to 100 feet. In the different seasons the beech presents totally different pictures: In summer it is a broad dome of grateful shade; in winter a glory of dazzling light gray; in spring it floats out its soft velvety gold-green leaves; and in autumn it is a rich and mellow mingling of subdued yellow-browns and grays.

There are two distinctly different forms of growth in the beech. In the forest it lifts itself in tall and somewhat "Y" shaped branches, developing a narrow and close head; but out in the open, where it can freely

stretch its limbs, it spreads out broadly, sending the lower branches in a horizontal direction, and developing a massive, round-headed, more or less open tree of faultless symmetry.

In winter, when the majority of trees are bare, the beeches, like the oaks, often hold some of the leaves, curling them in rich, light brown bunches that make lovely bits of color in the winter landscape.

The leaves of all the beeches are set alternately along the branches, in level, flat sprays, and are noticeably straight veined. They are the thinnest, I think, of all forest tree leaves, and possess a rare translucent quality which is the glory of the tree in spring. As the season advances they become a little thicker, considerably so in the case of the European type, thus affording deeper shade, which is a strong point in favor of the foreign species.

The flowers are produced in spring, with

the foliage. The sterile, or pollen-bearing, flowers are in the axils of the lower leaves. The fertile, or fruit-bearing, flowers occur in the axils of the uppermost leaves. The fruit is a burr, bristling with abundant prickles, and when ripe, splits to the base in four valves, setting free the two sweet, triangular, shiny brown nuts, each about a half-inch long. The flavor of the nut is delicious. The husk often remains clinging on the tree all through the winter. There is one, and only one, ground for objection to planting a beech, and that is its tendency to develop suckers.

The beeches are easily separated from all other trees when out of leaf, by reason of their characteristic buds. These are about an inch long, slender and spindle shaped, of a chestnut brown color, polished.

All the cultivated beeches are of two species, the American (*Fagus ferruginea*), and the European (*F. sylvatica*); as purely



Foliage of the common cut-leaved beech. *Fagus sylvatica*, var. *incisa*. One of the best forms



The very finely cut leaves of the fern-leaved beech (*F. sylvatica*, var. *heterophylla*)

ornamental trees the many forms of the latter species far outnumber those of the native.

DISTINCTIONS IN BARK AND LEAF

The two species are most easily distinguished by the differences of the bark. In the American beech it is a beautiful, pale blue-gray on the trunk and lower branches, but on the upper parts of the tree it is a granite gray, that flashes out almost white against the blue of a winter sky. There is none of this brightness in the dull dark Quincy granite gray of the European species. The smooth surface of the bark, which carries the sunlight in drifts of silvery sheen, lends one of the special charms of the beech. No other tree gives such rich, splashing effects of sunshine and shade. The smaller branches of the American beech are rich, dark brown, and glitter in the sunshine. The shoots of the season are glossy olive green.

In the American species, the teeth which terminate the parallel ribs of the leaf are regularly and symmetrically set. The leaf of the European beech is practically without teeth.

The European beech grows in a denser mass and, therefore, makes a more compact head. Its form is more symmetrically dome-shaped. As a general thing, both in the open and in the forest, the European beech branches much lower down than our own tree. In the open it is often so very low—about three feet, or even less, from the ground



Leaves of the European beech. Margins without teeth, and having five to nine pairs of veins



Foliage of the American beech (*F. ferruginea*). Teeth prominent and nine to fourteen pairs of veins



There are two forms of weeping beech, one green, one purple. Should be planted about the formal parts of the grounds, or on the lawn



In the winter the American beech adds brightness to the woods, on account of the silvery gray sheen of the bark in sunshine



The European beech makes an excellent hedge. This one in the Harvard Botanic Garden is forty years old, and is now twelve feet high. It has never suffered from insect or rust. Prune in late winter or early spring

—that it gives the tree a short, thickset, even clumsy trunk, but at the same time adds greatly to the impressiveness of the tree. The leaves are shorter and more nearly oval than those of the native tree, and have very obscure teeth. This gives the leaf of the European beech a wavy, scalloped-edged, almost entire margin. When the new leaves open, this margin is most beautifully fringed with delicate silvery hairs which remain conspicuous until growth is well advanced.

The American beech leaf has from nine to fourteen pairs of parallel veins, whereas the European's leaf has only from five to nine. The European's leaf is also much darker, and as the season advances, becomes thicker and of a rather leathery texture. There is, too, a degree of gloss, a richness of luster in the foliage that the native lacks.

THE PURPLE AND COPPER BEECHES

Nearly all the ornamental varieties of beech are derived from the European beech, as can be easily recognized in the untoothed leaves of many of these varieties. The copper and purple beeches are the most popular.

Like the type, they are low branching, short trunked, with a broad, round head.

The true copper beech (*Fagus sylvatica*, var. *cuprea*) has leaves of the most delicate shade of bronze-gold, gradually deepening to rich copper tones, as the season advances.

Unquestionably the best variety of the purple beeches is the Rivers' crimson, *purpurea* Riversi. This is often called the Rivers' copper beech but it would be far more descriptive to call it by the name I use. Its foliage in the spring is a bright crimson, changing later in the season to a dark purple, and in some fine specimens the color is almost black. The color is held throughout the entire season.

The common purple beech, *atro-purpurea*, clothes its branches with leaves of a rich, deep, dark crimson-purple. Walk around the tree, and get the effect of the sun shining through its rich, dark crimson. The leaves fairly flame with the deep wine-red tones, and as the breeze sways the masses, ever-shifting lights and shadows come and go through their depths, now brightening with sudden flames now as quickly changing to dark, passionate tones.

There is a beautiful close relative of this tree in the rose-margined purple beech, *roseo-marginata*. This has leaves of rich purple, with their margins softly flushed with a delicate rose color which gives a beautiful variegated effect.

To secure the fullest richness of effects these trees must be planted with careful regard to the surrounding and supporting masses of color. If possible plant a copper or purple beech where it will foil the white bloom of some early-flowering tree, such as dogwood, or black haw, or hawthorn.

ONE GOLDEN-LEAVED BEECH

The variety *Zlatia* has bright golden-colored leaves, and makes a fine foil for the purple beech, if you like striking color effects in foliage. This is permissible near the house, or in the more formal portion of the garden, but hardly for broad landscape work.

THE CUT-LEAVED TREES

The European beech also has some beautiful varieties with leaves that have their margins more or less deeply cut. The one most commonly known and extensively planted in gardens is the cut-leaved beech, *laciniata*, or *incisa*. The leaves are very deeply cut, reminding one of some of the smaller-leaved oaks. When grown to its full development this tree is remarkably decorative, the light, feathery foliage giving the whole tree a delightful grace and charm. The individual boughs admit of brilliant and sparkling effects of sunshine, on account of the finely cut foliage, very different from the solid masses made by the leaves of the parent tree.

Even more deeply cut is the foliage of the fern-leaved beech, *heterophylla*. Here the divisions run clear to the midrib, and amply justify the popular name. The young branches are almost tendril-like in their growth, and curve gracefully in the air.

The oak-leaved beech, *quercoides*, is recognized by the deeply toothed, wavy margined, somewhat narrow leaf. The tree is of dwarf habit. A curious sub-variety called *quercoides cristata* has foliage that curls inwardly in crowded small tufts, giving an effect of so many small tassels along the branches.

THE BEAUTIFUL WEEPING BEECH

This is perhaps the most satisfactory of all weeping trees. Planted on a lawn, with plenty of room to spread, it never fails to look "happy" although, of course, odd.

Its drapery of green falls in rich, dark masses, like some cascade. I think the most effective grouping is to arrange three of these trees close together.

LEAVES FOUR INCHES ACROSS

The largest leaved of all the varieties of the European beech is *macrophylla*, spoken of as the broad-leaved beech. Its leaves are almost as large as our basswood. They are silky, and of a rich, glossy green.

On page 86 there is a horticultural key to these beeches, by which any variety may be readily determined.



One look at this shoot of the cut-leaf beech explains why the entire tree is so handsome



A sort of lean-to built of hotbed sash, the terrace wall making one side. The house is 66 ft. long, 6 ft. wide with a solid bed. It grew lettuce from October till April, also cucumbers with sweet peas, wallflowers, and other flowers for planting out

Growing Winter Salads in a "Pit"—By Frank H. Presby New Jersey

AN AMATEUR'S INGENUOUS SCHEME FOR UTILIZING THE WALLS OF A TERRACED GARDEN AND PROVIDING THE EASIEST MEANS OF DOING GARDEN WORK IN THE MIDDLE OF WINTER—RAISING FLOWERS FOR CUTTING

Photographs by Harriet C. Presby

LAST fall I felt that in order to be perfectly happy in my garden I must find a place for some more coldframes, as I had only six, in which I grew pansies, daisies, and such like. My garden is divided into terraces, and I found the right place in the section used as the vegetable garden. After further consideration of the factors I decided that it would be better to build a cold house, or pit, instead of adding more frames.

The house is a lean-to sixty-six feet long, and six feet wide. The terrace wall, which is six feet high, was used as the back, or high wall of the house. The upper ends of the sashes rested on the top of the wall, which was built up two inches with cement grooved to fit the sashes. The lower ends of the sashes rested in a groove made of cement on a brick wall, which was two feet high. To cover this house I used twenty-two 3 x 6 ft. sashes. Six of the sashes were cut and hinged, so they could be opened as needed for ventilation. The north end of the house was built up solid with brick, while a door was made in the south end. The walls are made of brick, washed down with cement.

WHAT IT COST

While I do not remember what the whole cost of the house was, I do know that all of the material used (excepting the sashes) was worth about sixty dollars. The bricks used were of the cheapest kind and the cement of the Rosedale brand. A mason and laborer

did all the work in a few days after the foundation trench had been dug by my man. This house has no fire heat, but derives its warmth from the sun. During the cold weather the sashes are covered at night with straw mats.

As it was thought best to have a solid bed, a brick wall two feet high was built two feet from the back wall, which left a space for a walk, and gave a bed sixty-six feet long and four feet wide.

WHAT IT GREW

Last October the house was planted with 200 lettuce plants of the Mignonette and Big Boston varieties. All of these had been used by February, when it was again set with plants of Big Boston, which had been started in a box in the house about January 1st. As the ground was very rich, and plenty of water was used, the second crop was gone by spring, when the house was planted with cucumbers, and flower seeds.

The Big Boston lettuce made fine heads; many were as large as those which are sent to market. The heads of Mignonette were small, and while perhaps they stood the cold better than the other variety, I have decided to grow only the Big Boston for next winter.

In addition to the lettuce, I grew a large bed of mint and parsley; about fifty pansy plants, and a number of forget-me-nots, daisies and hardy primroses, all of which did very well. I had one hundred violet plants, and while the Prince of Wales variety did

very well, those of the Marie Louise were a failure, as they were badly attacked by spot. I also had about three dozen plants of Prosperity carnations, which were a failure, because the house was too cold.

The one thing which was the greatest joy of all was a bed of twenty-five wallflowers; they commenced to bloom early, and kept it up all winter. I picked a bunch about every Sunday, many times when the thermometer outside was at 20°, or even lower.

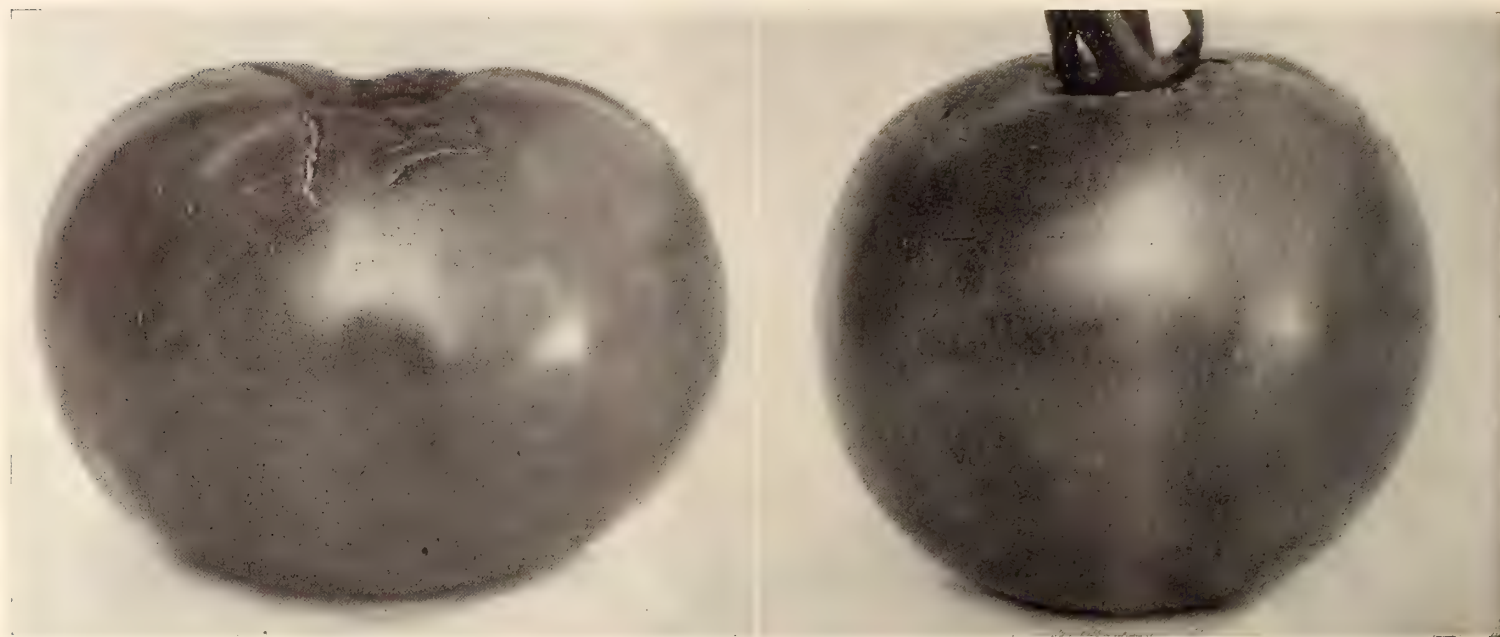
About the middle of February I planted sweet pea seeds in six-inch pots, and although they were a long time in germinating, I had plants three to four inches high, and the pots full of roots, by March 17th, when they were planted out.

GETTING AN EARLY START

I never found so good a place to start my flower and vegetable seeds as in this house—I think about every seed germinated—and especially good results were had also from a lot of Japanese iris and gladiolus seeds which had been hand fertilized.

In the spring the glass was lifted off, and I grew a fine crop of cucumbers. They did so well that I shall not plant any in the open garden next year.

The house (the professional gardener would call it a "pit") has made a fine place to spend a few hours on Saturdays when the ground is covered with snow, and an enthusiastic amateur is longing for spring.



The ideals of form and size; a smooth outline, the stalk set shallow and the basin not grooved. Such fruits can be sliced without waste. Both good for family use, not too large a portion for one person. On the right Livingston's Globe, on the left Stone

Quality Tomatoes for the Home Garden—By L. and E. M. Barron New York

PRACTICAL STANDARDS OF MERIT THAT SHOULD BE LOOKED FOR BY THE AMATEUR WHO WANTS THE BEST RESULTS ON HIS TABLE, IGNORING THE COMMON STANDARDS OF LARGE SIZE AND TOUGH SKIN

PERHAPS more than any other vegetable, the tomato repays the home gardener for the trouble of growing. Quality in this particular delicacy is measured chiefly by cultural methods and condition of ripeness. The very best tomato is the result of strong young seedling plants kept growing from the very earliest stage right through to maturity without a check; grown with abundance of space, giving free circulation of air through and around the plant, plenty of sunshine to give both color (which is appetizing), and sugar (which is an essential of high flavor). With these conditions satisfied, then there is this final factor—permitting the fruit to fully ripen on the parent stem, picking it at the acme of condition. An overripe tomato is mealy and deficient in flavor.

There is extreme delight in gathering from your own garden fruits or vegetables the likes of which are impossible to the less fortunate who have to depend upon store supplies. Such fragile crops, for instance as the tomato, the strawberry, and other bush fruits, when grown properly, and gathered at their prime, can only be carried very short distances. They cannot withstand the shaking and bruising that an ordinary journey entails. Small wonder therefore that the suburban home gardener revels in his quality tomatoes, and is ever ready to discuss methods and varieties with his neighbors. Unfortunately there has grown up a false standard of merit for Mr. Suburbanite. He glories over the immensity of his Ponderosa or Beefsteak, and accounts himself a master-hand at tomato culture if he can but get the

better of his neighbor's specimen by a fraction of an ounce.

Our ideals are quite different. Quite independently of what the flavor may be, we must confess a prejudice for a more moderate

sized fruit. From all standards one that is about two and a half inches diameter is the extreme of size for decent use. We want a tomato that will slice comfortably without having to divide the sections into odd shaped scraps; or, if the fruits are to be placed on the table whole, they ought to be of such size that the one fruit makes a suitable sized portion for one individual.

The tomato, like some strawberries, becomes red before it is really ripe. More than that, it can be picked before it is ripe, before it has even become thoroughly red, and kept in a warm place, it will greatly improve, and ripen up after a fashion. As a means of extending the tomato season into the late fall months, this is a valuable feature; but too often the desire to make things run along as easily as possible leads to the gathering of imperfectly ripened fruits during the summer months, just because they can be handled with greater freedom and less care. We even venture to think that many people who are growing their own tomatoes do not even yet realize the rich lusciousness of a well grown, properly ripened tomato!

Taken all in all, there is very little intrinsic difference of flavor in different varieties. By this is meant that the range of flavor is very small—ininitely smaller, for instance, than it is among the dessert fruits. Still, there are some varieties that are better than others, and they have come to be universally known. But the merits of a variety for the home garden are measured not entirely by flavor. Cropping quality, color and substance—that is to say, solidity—are equally important.



Growing the tomato plant to one or two stems to a stake ensures free circulation of air, plenty of light, and better quality, clean fruits

The most economical variety for the home garden is one that begins to bear early, and continues to yield evenly over a long period. Some otherwise excellent varieties have been introduced at times which bore superb looking fruits in one big crop, and then stopped. Such types do not find favor.

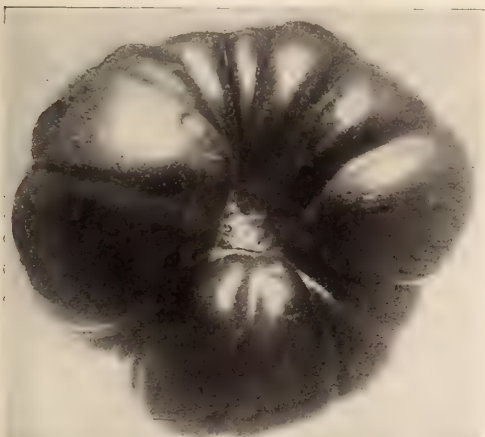
COLOR AND QUALITY

The question of color is one on which individual judgment and fancy has large play. There are four distinct color groups of tomatoes; three shades of red, which may be distinguished as pink, scarlet and crimson or purple; and yellow. There is a distinct correlation of flavor and color. Without exception the yellow fruited varieties are sweeter than the red ones and also contain less of the peculiar acidity which after all is the great charm of the tomato.

Of the red group, the scarlet ones appeal most strongly to the largest number of people. There is an indescribable quality in a rich bright scarlet that positively seems to make one's mouth water. Even though the pink or crimson varieties were actually better quality than the scarlets, still we are sure that the scarlets would be the most popular. We see it in other things. Bright red is instinctively associated in one's mind with high quality. The crimson or purple fruits, as a matter of fact, embrace some of the very best varieties, as for instance Trucker's Favorite, which, though one of the more recent varieties, has attained a permanent place in the popular fancy.

EARLINESS ALL SUFFICIENT

As a rule, earliness is obtained at the expense of quality. It is so in all our garden fruits and vegetables. Of recent years the seedsmen have been making one continuous effort to introduce earlier tomatoes, that is to say, varieties that will carry full crops in the shortest period after starting the seed. As a matter of fact advances in this respect have been very little. From time to time a novelty is heralded as being a week to ten days earlier than the earliest hitherto known, and calculating from the time when tomatoes first came into general cultivation, we would by this time easily have arrived at the stage of getting the ripe crop before the seed was sown!



This sort of tomato is very wasteful when sliced. The stalk end is all loss



Cherry tomatoes, less than an inch in diameter. Might as well have larger fruits for the same labor



A poor type of hollow fruit. Such large seed cavities are wasteful, and awkward to serve sliced



The ideal of solidity. Always select a fruit that is heavy in comparison with its size

The standard of earliness to-day is probably Sparks' Earliana. It exactly fits the stated ideals of a quality tomato, in size, color, and solidity. It is also an abundant yielder for about four weeks. For a main crop variety, the old favorite Stone is still unsurpassed. Doubtless there are others as good. It is large, smooth, solid, scarlet, slightly flattened. It has one attribute which may be counted as a slight weakness, but should not be allowed to interfere with appreciation of its real qualities. Toward the end of the season the skin is somewhat prone to split at the basal or stalk end of the fruit.

A TOUGH SKINNED EXAMPLE

The skin thickness of the fruit has a great deal to do with its qualities as a shipper. The harder, tougher, or thicker the skin, the better the fruit is for shipping, of course. But we for home use don't need to study shipping qualities. If we did, we would all be growing Honor Bright. It will withstand almost any sort of hard usage, and it is curiously interesting, because it ripens, or rather it colors from the inside working outward. When in the first stage of ripeness, the fruit changes from green to a peculiar yellowish white. When of a golden yellow, it can be picked and given rough handling without suffering injury, and it will ultimately ripen off into the brightest scarlet. But for comfort in eating, you have to remove the very

tough skin. The home gardener can afford to start with a skin that is considerably more delicate. The tender skinned varieties have a tendency to split, especially when they are under highest cultivation, which means that the fruits are juicy to the bursting degree.

Other things being equal, always give preference to a fruit of even form and smooth outline. It eases the handling for table. There is practically no waste in a smooth surfaced tomato. A ribbed fruit of the old-time type is wasteful to a degree, especially as both the flower and stalk ends resolve themselves into stringy irregular rings. There is thus a loss in slicing of perhaps 15 to 20 per cent. Equally, a solid fruit, that is one in which the seeds are few and the divisions of the cavity both many and thick, is a better fruit for the table. It is easier to slice, and to handle subsequently. An open celled tomato falls to pieces easily.

ADD SUGAR IN COOKING

When cooking tomatoes, the addition of sugar becomes necessary. As a matter of fact, the chief nutritive value of the tomato lies in its sugar content, and in many processes of cooking this is dissolved or modified, which would seem to indicate the desirability of adding sugar directly. Ripe tomatoes are nearly 5 per cent. sugar, and it has been found practically one-half of this is lost in the process of cooking. This is particularly true of the red varieties. The yellow kinds have seemingly a greater sugar content; for it is certain that when cooked they do not acquire that extra acid quality which characterizes the red ones. Far from having to add sugar to the cooked yellow fruit, there appears to be still an absence of acidity.

When serving sliced tomatoes, especially if you grow thick skinned varieties, it is well to get rid of the skin.

Rub the blade of a silver knife all over the surface. This is a better way than the usual one of scalding them, which loosens the skin but however quickly done, seems to impart a "cooked" flavor. After peeling, slice the fruits and place them on ice, or in a cold place for an hour, to get thoroughly chilled. They can be used for salad, baked, stewed or fried.



Stirling Castle, an early crop variety, and good for forcing. Abundant bearer of moderate sized fruits



The northwest corner of the piazza is enclosed in glass walls to make a light room, which can be heated by an oil stove

Winter Flowers in a Piazza Conservatory—By M. K. Farrand New York

HOW A 10 x 10 FOOT CORNER PROVIDED AN ABUNDANCE OF FLOWERS THROUGH THE WINTER FROM BULBS AND PLANTS STARTED IN AUGUST AND SEPTEMBER—AN AMATEUR'S CALENDAR OF OPERATIONS FOR INDOOR GARDENERS

WE CALL it the "glass house" because conservatory seems too grand a name for a space ten feet square, but I venture to say that this small place gives more pleasure and perhaps more flowers than some others which are on a more elaborate scale.

Beside the flowers, the glass house is big enough to hold comfortably a wicker arm chair and a tea stand, not to mention the three small persons who love to perch themselves on the hospitable step that forms the entrance from the house.

The glass house is built on the northwest corner of the porch, and consequently gets the early morning sun from the east, and the south and west sun all the rest of the day. This next winter will be the third season for this little conservatory, and many are the trials that have beset me on account of the heating problem.

KEEPING OUT THE FROST

The first year a small coal stove was installed in one corner, and the temperature varied from tropical to arctic in a startling manner; what the poor plants underwent that winter is a subject too harrowing to dwell upon, but in spite of being baked one hour and chilled the next, they managed to survive, and the pleasure which the experiment gave made me eager to continue it the next year.

The coal stove was succeeded by a smokeless oil heater. This has proved, except in windy and very cold weather, a most satisfactory arrangement, for it burns an astonishingly long time—ten hours at full flame and sixteen when the days are mild and the wick can be lowered—while the heat it gives out is tremendous for such a small thing.

This fall the heating question will be settled for good by running a pipe from the furnace underneath the drawing room floor out into

the glass house, thereby ensuring a regular temperature, and also doing away with the danger of having the stove upset.

I started in with some stocks and cannas taken from the garden, and some ferns and green leaved plants, but before bulb flowering time a most painful break occurred in the blooming season, which I shall remedy next year by careful planning.

FLOWERS READY FOR CHRISTMAS

Just a few days before Christmas saw the first box of paper white narcissus in full bloom, and since then the house has not been without flower.



A cheery adjunct to the living room; bright colored flowers instead of the dreary winter landscape

Freesias, Chinese sacred lilies, and more paper white narcissi followed in January; and on the 18th of the same month, coming, curiously enough, coincident with the flowering date of last year, the azaleas commenced their lovely reign, and kept bravely on till the last of March.

Before the flowers of the last box of narcissus had withered, the early Yellow Prince tulip started in, and from the 15th of February until the 25th of March, ninety-three of them made a most gorgeous display in a big flat box.

Sometimes my conscience reproaches me when I crowd so many bulbs together, but the mass effect of the bright colors is so pleasing in mid-winter, I harden my heart, and squeeze the next set into the smallest space.

FORCING GLADIOLUS

One hundred and fifty *Gladiolus Colvillei* were planted on the eighth of January, which gave me dozens of the white and pink flowers in the third week of May. This was later than I had anticipated for I had expected the gladioli to flower shortly after Easter. I should have done better if I had grown the Blushing Bride type which flowers much earlier.

These bulbs are seldom forced by amateurs, but after this experiment, which was rewarded by long spikes of perfect blooms just like their garden sisters, only on a smaller scale, they seem to me to be as indispensable as the Holland bulbs.

Wistarias in large pots, and hyacinths of two varieties came next, while more tulips (variety Murillo) and a huge plant of double flowering cherry (*Prunus Pseudo-Cerasus*, var. *hortensis flore-pleno*, known in the trade as *P. Sieboldii*, var. *rubra plena*) made March gay with pink tints. The calla lilies kept on until May.



Some of the best flowers of late winter were the wisterias and Indian azaleas, and of course the bulbs flowered in succession lots

In the meantime a notable floral occasion in the glass house had taken place—two cinerarias raised from seed sown in August, and one pitiful rose had bloomed, and there was more real pride over those three plants than over all the others which did much better.

The cinerarias underwent all the troubles usually attendant on their culture by an amateur—damping off, aphids, then a general scourge from too much nicotine as a cure for the aphids; the total result from a box of seedlings was only two plants.

HANDLING SMALL SEEDS

Seeds of the greenhouse type of plant, such as primrose, cineraria, and calceolaria, may all be started in the usual way, in flats with window glass over the boxes to prevent too rapid evaporation of the moisture, but care must be taken to secure the right soil. Finely sifted woods earth, mixed with one third sandy loam, has proved a reliable combination in which to germinate the seeds of these plants. To ensure good drainage put a layer of sharp sand and bits of broken crockery and charcoal in the bottom of the box. Charcoal and bird sand are invariable accompaniments of all my indoor gardening, and I always keep on hand a supply of both. Buying the regular bird sand provides this necessity in a neat and convenient form, and charcoal is, of course, available in most households. Its

use answers the double purpose of drainage, and (as all good housewives know) absorbing impurities.

A bulb syringe is indispensable for watering the soil before growth appears on the surface, and through all the earlier stages.

WATERING AND REPOTTING

After the seeds germinate, and the seedlings have developed three or four leaves, transplant them to one and one-half inch pots, using about the same soil and drainage as in the flats, adding a small quantity of well-rotted cow manure.

Watering these tender young plants is the next detail to be considered, and if you have a greenhouse bench, plunge the pots to the rims in sand. Water the seedlings when the soil in the pot seems to be drying out, but for the most part, water the sand around the pots, which will keep the roots sufficiently cool and moist, without danger of the dread "damping off." If a bench is not at your disposal, fill a shallow box with sand.

As the young plants grow and increase in size, repotting takes up the indoor gardener's attention, and whether your seedlings grow on, unchecked and successful, or whether the roots grow too large and become pot bound before they are shifted to the next size, is largely a matter that depends on your own care and watchfulness.

Leaves make a growth relative to the underground, and when their spread seems out of proportion to the size of the pot, the right moment for transplanting has arrived.

Prod gently with a pencil the piece of crockery covering the outlet of the flower pot; this loosens the earth on all sides, and the plant, a solid mass of roots and soil, may be easily slipped out and repotted in the necessary size. From seeds started in April, the plants may be set out of doors in frames in June, and grown cool as late as the weather permits in the autumn.

TWO FLORAL ARISTOCRATS

Chrysanthemums and roses, both flowers that we associate with luxury, are fittingly enough luxury loving plants, and to do their best, they must have sunshine, water, rich soil in abundance, and the best of drainage.

The soil for chrysanthemums differs from the soil best adapted to roses, inasmuch as chrysanthemums need a good sandy loam, well enriched, with "short" cow manure and wood ashes, while the rose requires a clay loam. It is a good plan to have a special place in a sunny frame for these aristocrats among flowers, one where their need for perfect drainage can be met by preparing a trench with a layer of coal ashes in the bottom. When your plants are set out, place them on the ashes.

Feed them with liquid manure at intervals throughout the growing season, and for the chrysanthemums, which must be given larger pots as the plants grow, add a greater quantity of manure with each repotting.

Most bulbs require a sandy loam made porous with a fibrous woods soil, and a layer of very old manure may be used to advantage in the bottom of the pans, if each bulb is well protected from possible contact with the fertilizer by a small handful of sand.

All the hardy bulbs do best if the pots and boxes are planted in a pit out of doors to make good root growth, though of course a good covering of leaves is necessary to exclude the light, and prevent the hard frost from getting in.

While the earliest of them are maturing, the early, mid-season, and late chrysanthemums will be ready to supply a glorious succession of flowers till December, and so for next year, from October on, I look forward to a continuous display of bloom until spring again calls us to out-of-door-gardening.

"THE GLASS HOUSE" CALENDAR

September—Start first set of Dutch bulbs and various types of narcissus—lift and repot house plants from frame the second week. The narcissi will bloom before Christmas; the tulips and hyacinths at Christmas time.

Continue planting at intervals of two weeks for succession; first, second, third and fourth sets of tulips may be found in LaReine, Yellow Prince, Rose Grisdelin and Pottebakker types—Hyacinths, Ida, Baron van Thuyll for earliest. Unnamed sorts are less expensive and do just as well for later flower. Grow the white alba superbissima for Easter. Polyanthus narcissus are best for Christmas, and the Trumpet types for later.

October—Lift chrysanthemums and start in the house. Last of the month plant *Gladiolus Colvillei*. Blushing Bride gladiolus flowers six weeks earlier than The Bride and rubra. The latter may be set in January for May flowers. Gladioli require a gentle bottom heat to start growth quickly.

February—Take cuttings of Paris daisies, chrysanthemums, and begonias, for flowers in October and later.

Much expense may be saved if small greenhouse plants are bought at this season, and grown through the summer to maturity.

March—Sow Ostrich Plume chrysanthemums and Chabaud's carnations, for flowers in October and later.

Carnations of this strain will bloom continuously throughout the winter.

April—Sow seeds of cinerarias for March flowers, and Chinese primrose seeds for Christmas flowers.

Cinerarias will flourish in spite of hot summer weather, if planted in a deep-framed pit

slanting north with a muslin shade over the top.

May—Plant out in coldframe all house plants by the middle of the month.

Unpot plants, and place in the earth in bottomless cardboard or wooden boxes. The plants will grow all the stronger for this, and the cardboard straight jackets will check the roots from spreading.

June—For flowers in October and later, disbud chrysanthemums and roses until the middle of August. Deutsche Perle, (white) and Simon Mardner (dark pink) are the surest azaleas for Christmas bloom. Be sure to pinch out side shoots around forming azalea buds; the buds will be crowded and blast if you neglect this.

July—Sow calceolaria seed and buy Gloire de Lorraine begonia plants. The begonias will flower in December, the calceolarias in March.

Treat calceolaria the same as primrose and cineraria—the tall growing hybrida type is the handsomest.

August—Pot Easter lilies and freesias; take cuttings from Paris daisies and heliotrope; sow cineraria again. The lilies and freesias will flower by Christmas; the others from January on.

By planting freesias among lilies or other slow maturing flowers, they will bloom before the lilies, and break the monotony of waiting. If planted two inches deep the nuisance of staking is avoided.



Tulip Yellow Prince in full flower on February 15th. The largest possible number of bulbs is packed in the flat, to secure a solid mass of color

Making More and Better Fruit Trees—By S. W. Fletcher

Michigan Agricultural College

LITTLE TRICKS THAT FACILITATE AN INCREASE OF STOCK BY TAKING ADVANTAGE OF THE HABITS OF GROWTH—HOW TO PERPETUATE A “BETTER-THAN-THE-AVERAGE” TREE OR BUSH—WHEN TO BUD OR GRAFT

PERHAPS your neighbor has a new or a rare variety of some fruit the nurseryman cannot supply, and from which he is willing to let you have cuttings, or grafts; perhaps in your own garden there is one tree of unusual excellence. If so, you will want to know just how to increase the quantity. There is no small attraction, too, in the mere pleasure of multiplying plants; but as a practical economy it is far better and cheaper as a rule to buy from a reliable nurseryman than to attempt to propagate them at home.

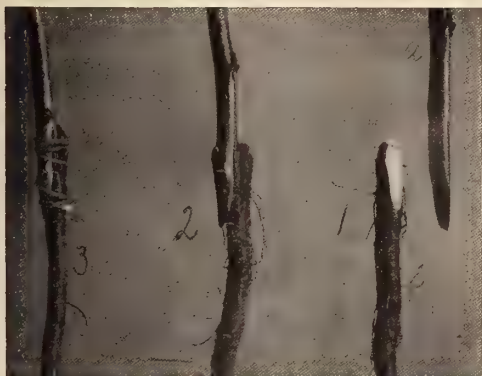
FRUITS THAT COME TRUE FROM SEED

Few of the common fruits “come true” from seed; the seedlings are usually quite dissimilar to the parent. Some varieties, however, notably the Green Gage plum, Crawford peach, and the Fameuse apple come more true from seed than others.

Propagation from seed is chiefly resorted to for raising seedling stocks on which to bud or graft desirable varieties. A large number of tropical and sub-tropical fruits are commonly grown from seed, but even these seedling fruits are variable, and when it is desired to perpetuate improved varieties of them, recourse must be had to grafting or some other method of dividing the plant.

“STRATIFYING” SEEDS

As soon as the seeds are mature they are mixed with sand, after the pulp has been removed, as with plum or peach pits; or with the decayed pulp clinging to them, as with strawberry or raspberry. On the bottom of a flat or shallow box place about an inch of sand, then a thin layer of seeds, followed by an inch of sand, then seeds, and so on to the top. Fine seeds that cannot be screened out readily may be put between folds of cheesecloth. Bury the flat to its rim in some well drained spot out of doors, and cover with straw after the sand has frozen solid; or it may be placed in the cellar, but care should be taken that no mice, blue jays, squirrels or other animals disturb it. The sand is kept barely moist, not wet, and never allowed to become dry.



Making a root-graft. The cion and the piece of root are first split, then joined together and tied with waxed string. Whip grafting is done the same way

After some months, usually at the end of the winter, the seed coats are found to be softened, so that germination is easy. Freezing the seeds is not necessary; moisture alone will soften the seed coats sufficiently, but freezing is quite beneficial to such bony seeds as peach and plum.

In spring screen out and sow the seeds; or if they are very small, the sand itself may be sown. The large fruit seeds may be sown in the garden; it may be best to sow the very small seeds in shallow boxes of light soil, and transplant them to the garden later. Some bony fruit seeds do not all germinate the first season.

Soaking the seeds in warm water for about twenty-four hours aids them to germinate, but this is not as desirable as stratification. Fruit tree seedlings are large enough to graft or bud when one year old, except some citrous seedlings.

PROPAGATION BY LAYERS OR STOLONS

In layering, a shoot from the parent plant is made to throw out roots from the cambium layer, and is then detached from the parent. Usually the most successful way of encouraging these roots to form is to cover a part of the plant with soil. There are several methods of layering, each adapted for certain plants.

Stolons or “tips” are the young plants produced when some part of the parent plant bends down and takes root. The most common examples among garden fruits are the strawberry, black raspberry, and dewberry. The strawberry sets runners freely without any attention, but if it is desired to get runners rooted early, put a small stone, or handful of soil on the end of the runner. The end of the runner can be removed from the plant, even before it has thrown out any roots, and treated like a cutting. Extra strong raspberry and dewberry plants will be secured if the ends of the branches are covered with soil when they strike the ground in late summer. Layer all the branches one way, between plants in the row, so as not to interfere with tillage. The tip is usually left undisturbed until the following spring, but is ready for planting late that fall if necessary.

Mound layering consists in banking soil around the base of the plant and leaving it there until the shoots have rooted. In the fruit garden it is practised chiefly on currants and gooseberries, but it may also be used to propagate the plum, quince, and dwarf apple stocks. Usually it is best to cut back the plant the season before layering, so as to induce the growth of many root shoots, thus making a “stool.” Earth is banked around the stool in the fall. By the next fall, or in the spring, each shoot should be well rooted, and may be detached from the plant. In the North it is best to separate the plants in the fall and winter them in the cellar.

Branch layering is a good means of prop-

agation when it is desired to secure only a few plants, and not to interrupt the fruit bearing of the mother plant. A few of the outside branches are laid down, and covered with soil to within a foot of the tip, which is bent upright above the surface. At the point where roots should form, slit the bark with a knife, or severely twist the branch. When the covered portion is strongly rooted (which takes from three months to two years, according to the kind of fruit) it is separated. The quince, currant and gooseberry may be propagated thus.

Grapes and dewberries are layered by pegging down the whole cane in the spring, covering certain nodes about eighteen inches apart, and arching the cane between these points. As many new plants are made as there are nodes covered.

PROPAGATION BY CUTTINGS

This method differs from layering only in that the shoots are rooted after they are taken from the mother plant, instead of before. Some fruits are readily propagated by soft wood cuttings in the summer, but this method is rarely used, except for the olive.

The quince, currant, gooseberry, fig, mulberry, olive, and grape are most easily propagated by hardwood cuttings. In parts of the South having a humid climate and warm soil, even some of the Northern tree fruits, as the oriental varieties of pear, and the plum and cherry, are easily propagated from cuttings of one-year-old wood.

Hardwood cuttings are made of dormant wood of the past season's growth, in autumn after the leaves begin to fall, but may be taken at any time before the plants start into growth. Autumn is preferred because the lower ends of the cutting will become callused before spring, and will root better in that condition. In the Northern states, cuttings should be taken at least two months before they are to be set in the ground. Some varieties of grapes root better if a bit of the older wood is left on the end of the



Currant cuttings planted. Gooseberry and grape cuttings are treated similarly. Only two or three buds should project above the ground. Plant in autumn or very early spring



Budding the orange. Two buds have been inserted and have made two shoots. The stock has been broken over, not cut off

cutting, making a "heel" or "mallet." Except in these cases, the lower cut should be made just below a bud: Make the lower cut slanting, so as to offer much surface for the formation of roots. The upper cut may be an inch or more above a bud. The length of a hardwood cutting should be from four to eight inches. There may be two buds upon it, as in a "short cutting" of the grape, or three buds, as in a "long cutting" of grape, or six to twelve buds, as in a currant or gooseberry cutting. "One eye" grape cuttings may be made, but these must be rooted under glass.

Plant hardwood cuttings in the fall as soon as taken, except in the northernmost states. Set the cuttings three to six inches deep, with only one or two buds above ground. Rub off all buds, except two or three on top. Press the soil firmly about them with the feet, and in the North give a heavy mulch.

The alternative is to tie the cuttings in bundles of twenty-five or fifty, all butt ends together, and store them over winter in the cellar, in moist sand, sawdust, or moss. Or they may be buried, bottom ends up, in some sheltered and well drained spot out of doors.

In the spring they are set out like the fall-planted cuttings. The rooted cuttings will be large enough to set in the garden at the

end of the first season, but plants two years old from the cuttings are commonly preferred.

PROPAGATION BY SUCKERS AND ROOT CUTTINGS

The red raspberry, blackberry, Juneberry, banana, pineapple, fig and date are best propagated from suckers dug in fall or spring, and planted immediately.

The best red raspberry, blackberry, and mulberry plants are secured by cutting the larger roots into pieces from two to four inches long. These are packed in moist sand over winter, and planted in the spring like hardwood cuttings, except that the upper end is covered with soil to the depth of one inch. Be careful to plant the top end up; that is, the end that was nearest the stem, indicated by the growth of the fibrous roots. These root cuttings make excellent plants in one season. If necessary, any of our common Northern fruits, as plum, cherry, peach, pear and apple, can be multiplied by root cuttings; but of course they will not come true if the parent is a grafted tree.

PROPAGATION BY GRAFTING

Budding and grafting differ only in one respect; in grafting, a shoot several inches long, and bearing several buds, is used to perpetuate the variety; in budding, a single

bud, with a bit of bark, and perhaps a bit of wood attached to it, is inserted into the stock. There are more than a hundred different methods of budding and grafting, but only three of them are in common use in gardens: cleft-grafting, whip-grafting, and shield-budding.

Whip-grafting is used for two purposes: to change the variety of young trees already growing in the garden, and to propagate young trees for planting. If there is a tree from one to three years old growing in the garden and the variety is undesirable, it may often be "worked over" to better advantage by whip-grafting than by budding. Whip-grafting is not commonly employed on shoots over three-quarters of an inch in diameter, and is usually done on one-year-old wood. Larger branches should be cleft-grafted or budded.

Grafting is done in early spring, the cions having been cut from the trees and stored over winter like cuttings. The cion and the shoot to be grafted are preferably of about the same size, but the cion may be only one-half the diameter of the stock without serious disadvantage. The stock is prepared to receive the cion by cutting it off diagonally, making a smooth, even cut about three quarters of an inch long; the knife is then placed at right angles with this cut, about one-third of the distance from the lower end of it, and is cut down lengthwise of the shoot, making a split about one-half inch deep. This "tongue" is made for the purpose of holding the cion firmly in place.

The cion is next prepared in exactly the same way, and the two joined together by their tongues. The cion should be of one-year-old wood, from three to six inches long, and should bear several strong buds. The important point in grafting is to press the cambium layer—the green inner bark—of the cion tightly against the cambium layer of the stock, so that the two surfaces will unite. If the cion is smaller than the stock, do not, therefore, put it in the middle, but flush with one side of the stock.

Having united the two, firmly wrap five or six turns of waxed cotton—made by soaking No. 18 knitting cotton in hot melted wax—around the point of union, or bind it with strips of waxed cloth. This wrapping is not removed when the graft is planted. All the small branches on a small tree may be grafted over in the same way. It is best to allow but one or two buds on the cion to grow.

ROOT GRAFTING

Root-grafting is commonly done in the winter, preferably before February, the roots and cions having both been secured in the fall, and stored. The cion is placed on pieces of roots from two to six inches long, and from one to three quarters of an inch thick. These roots may be the entire root system of one-year-old seedlings, or pieces of these seedling roots, or small roots of older trees that have been dug up. The entire root of a seedling is preferred. The operation is performed exactly like the whip-grafting of established trees described above.

Cleft grafting is used to work over old



Blackberry "tips." Cover the ends of the canes with soil in the late summer. When planting, see that the bud in the centre of the mat of roots is upright

trees. The stock is split by a chisel and a wedge-shaped cion is inserted on the margin.

PROPAGATING BY BUDS

Budding is the most common method of securing new plants of apple, pear, cherry, peach, plum, orange, lemon, pomelo, persimmon, and many other fruits; also to change young trees of undesirable varieties of fruits into more favored sorts.

Seedling stocks must first be secured. These are usually taken up and stored at the end of their first season, and are set out again the following spring about six inches apart in the row. They are ready to bud late that summer. Peach stocks, however, are ready to bud in September, from pits planted the same season. Budding can be done any time when the bark of the stock peels readily; but it is commonly done in late summer or early fall, because mature buds can then be cut directly from the trees. If done in early spring, the buds need to be taken from cions that were cut during the previous fall or winter. Apples and pears are commonly budded in late July or early August. Plums and cherries may be budded later, and peaches last of all, in early September. A few days before budding, remove the leaves from the base of the stocks to a height of several inches from the ground. This makes the bark somewhat firmer to receive the bud.

WHERE TO GET BUDS

The buds are cut from "bud-sticks," which are mature shoots of the current season's growth, secured from the ends of the bearing limbs of valuable trees. Only well-developed buds are used; those near the end of the shoot are usually discarded. Be careful to get leaf buds and not fruit buds, if propagating stone fruits.

Each leaf is cut off about one-half inch from the bud, thus leaving a handle for it. The bud is now cut off with a sharp thin knife, which is placed about one-half inch below it, and drawn upward parallel to the shoot, and to an equal distance on the upper side of the bud stick. A bit of wood may be left just beneath the bud, but usually it is best to cut thinly, leaving only the inner and outer bark attached to the bud. When many buds are to be inserted, all the buds on a stick may be cut at once, leaving them hanging by a shred at the top until needed; but buds should not be cut longer than a few minutes before they are needed.

The buds are inserted into a T-shaped cut on the stock, which is preferably made on the north side, and as close to the ground as a smooth place where the bark peels readily can be secured.

The cross cut is made first with a rocking motion of the knife; it should be about one and one-half inches long. The longitudinal slit below it is then made; it should be about two inches long. Both cuts go through the bark to the sap wood. The edges of the incision are now loosened and rolled back slightly with the knife, and the matrix is now ready to receive the bud. This is grasped by the leaf stock and inserted beneath the bark;



Curren cuttings five to eight inches long are made in the fall or early spring from shoots of the previous season

the point of the knife may be used to put it down firmly. This leaves the bud with its cut surface in contact with the peeled wood of the stock. The cambium layers of the bud and the stock unite, as in grafting.

The bud must be bound in, but no waxing is needed. Narrow strips of cloth will answer, or any soft string, but raffia fibre is best. The ligament is wound around the stock several times, both above and below the bud. Ordinarily these buds will show if they have "taken" in one or two weeks; if so, they remain green; if not, they shrivel. As soon as the bud is seen to be united firmly to the stock, the ligature should be cut.

The bud should not begin to grow until the following spring. It may be protected during the winter, if necessary, by banking the stocks with soil. In early spring the stock is cut off just above the bud, leaving a mere stub containing a single bud of the desired variety. In budding citrous fruits the stock is partly cut off and is bent over, but

it is not removed until the bud has grown into a strong shoot. See that no suckers from the stock dispute with the bud shoot. Budded trees are ready to plant when one or two years old from the bud.

CHANGING A VARIETY

Budding is sometimes used for changing the variety of established trees. Peaches and apricots, which are not grafted readily, are very commonly worked over by budding. This method is also employed advantageously with apples, pears, plums, cherries, oranges, lemons and most other common tree fruits. Buds can be inserted successfully in branches two or three years old, or even older on the stone fruits, but it is safer to put them on one-year-old wood. If the trees are over two or three years old, this may necessitate cutting the tree back severely, so that buds may be inserted low down in the vigorous shoots that result. This may be done the same season, with new buds, or the following spring, with buds from dormant cions.



Budding. Note angle of blade in making cross-cut of the T. The bud taken from the "bud stick" has a bit of bark attached. After being slipped into the stock it is tied firmly with string, raffia, or basswood fibre



The Victorias are the largest of all the water-lilies—leaves often six feet across and the flowers one foot; white the first evening, changing to pink on the second night. To the left of the expanded flower is an opening bud, and still further to the left a spiny leaf bud (*V. Cruziana*)

Water-Lilies for the Business Man—By Henry S. Conard Johns Hopkins University

THE TENDER NIGHT-BLOOMING KINDS THAT OPEN THEIR FLOWERS AT SEVEN O'CLOCK—WONDROUS GLOWING GARNET REDS AND MAGENTAS THAT FLOWER FROM JULY TO FROST, AND ONE THAT GIVES THIRTY FLOWERS AT ONCE

Article XI of the "Little Monographs" series

THE night-blooming water-lilies, which we may properly term the lotos group, open their flowers between seven and eight P. M., and they remain open until from nine to one o'clock of the following day. Each flower does this on three successive nights. These are therefore preëminently the busy man's water-lilies; the proper kinds for the suburban dweller who is away from home and garden throughout the day.

They are all tender. In habit they resemble their day-flowering relatives. The leaves are numerous and mostly large—up to two feet across—and lie flat on the water. A single plant will cover a space ten or twelve feet square. Yet they get on well in smaller quarters. I knew a red one that bloomed all one summer in a tank four feet square, where two hardy water-lilies and the water-poppo also shared the space.

The margin of the leaf in all the lotos group is scalloped, with sharply pointed teeth. The flowers, when well grown, are large and massive, and are borne on stout

stalks six to twelve inches above the surface of the water. In color we have all shades, from pure white through pink to magenta and deep red.

A REALLY BEAUTIFUL MAGENTA

To my eye, the most splendid member of this group is *Nymphaea Omarana*. Its noble flower reaches a diameter of ten or twelve inches. In color, it is of a brilliant purple-red hue, close to "magenta" of the color charts. Each petal has a narrow, nearly white, stripe along the middle. It has, as Tricker says, "an indescribable glow" when seen in the early morning sunshine. The petals are thin and soft in texture, and spread gracefully in all directions in the fully opened flower. The sepals and lowermost petals become reflexed. The many brownish-red stamens stand erect in a ring at the centre of the flower. As this kind is a very free bloomer, a single root will always have one or two mature flowers. It begins to bloom in July and continues until

frost. The circle of large bronzy-red leaves alone is an ornament to the garden.

Comparable with this is *Nymphaea Sturtevantii*. Under favorable conditions these flowers, too, may reach a foot in diameter. But it never opens more than to a wide cup-shape. The bright pink petals are broad and concave, evenly colored and very numerous. The incurved stamens are of a brownish orange color. The bronzy leaves are often very large, and always much crumpled at the margins. It requires plenty of room and a high temperature to give the best results. It is the most massive in flower and foliage of all the true water-lilies.

THE BEST RED LILY

Of a darker shade than either of the preceding, though a parent of both, is *Nymphaea Devoniensis*. This again has flowers of the largest size, but of a pure red color. The petals are ovate, four or five inches long by an inch and a half wide. The flower does not expand so widely as that of Omarana,

although it is more open than that of *Sturtevantii*.

Devoniensis is a mostly sterile hybrid, and is a very free bloomer. The plant gives rise during the summer to a number of lateral crowns. When several of these get started, a single plant may cover two hundred square feet of pond, and may have as many as thirty-six flowers and buds visible at one time! Under these conditions the leaves are badly crowded, and the flowers are under size, but the effect is superbly rich. When the leaves first come up they are dark red. As they grow older, they become greener, finally reaching a bronzy-green.

A GROUP OF VERY DARK REDS

Among recent introductions are some reds much deeper in shade than *Devoniensis*. Probably *N. Geo. Huster* is the best of these. It is a strong grower and free bloomer. Its flowers are not so large as those of *Omarana*, being only eight to ten inches across at the best. Otherwise the two kinds are very much alike.

N. Frank Trelease is a variety with still deeper crimson flowers, of medium size. The color is so dark as to give very deep shadows between the petals. Its leaves are dark bronzy red, and about fifteen inches across.

N. Columbiana, an old variety, is not so deep in color as the last two, and its flowers are only about six inches across. The leaves are bronzy red. It is only a moderate grower.

THE PURE WHITES

Passing to the other extreme of color—for color is our chief means of classifying these kinds—we have several pure whites. The chief of these goes by the name of *Nymphaea dentata*. The petals of *dentata* are about three and a half times as long as they are wide. In a fully open flower they stand out in a ring or disc exactly at right angles to the petiole. In the middle of the flower the light yellow stamens stand erect. The whole effect is rather curious and a little stiff. It might be likened to a short, stout candle standing in the middle of a white saucer. The leaves are bright green.

As varieties of this there are three forms offered, or about to be offered, for sale.



Jubilee, delicate pinkish white; one of the many hybrids of the lotus group. Seeds freely

They are undoubtedly improvements in size and profusion of flowers. *Nymphaea dentata*, var. *grandiflora* is described as having petals twice as wide as the old form. *N. dentata*, var. *superba* has more numerous petals than the original, and *N. dentata*, var. *magnifica* is a larger flower. The old *dentata* only reaches eight or ten inches across.

Distinguished from *dentata* by the shape of its flower is the white night lotus (*Nymphaea Lotus*). Horticulturally its chief virtue is its great fecundity. Both lotus and *dentata* bear big balls of seed in great profusion. And their hybrids inherit this character in more or less completeness. The petal of lotus is broad and concave, the outside often tinted with pink. The flower opens only to a cup-shape. *Nymphaea thermalis* is identical with *Nymphaea Lotus*.

From these we may pass to *Jubilee*, of a delicate pinkish white color, and on to *Smithiana*, with slightly more pink; *Delicatissima*, light pink; *Deaniana*, deep pink; *Kewensis*, a little paler than *Sturtevantii*.



N. Devoniensis, the darkest red water-lily. One plant will cover 200 sq. ft. of ground, and have thirty flowers open at one time

With the flower color goes a bronzy tint of the leaves. The leaves of *delicatissima* show a distinct metallic tint, which in *Kewensis* reaches a definite bronze. In shape of flower, *delicatissima* resembles *dentata*: it opens widely, and the petals are narrow. The other three have broad ovate petals, which only open to form a cup-shaped flower.

The cup-shape is only desirable when the flowers are looked at from above. Ordinarily the widely opening kinds are to be preferred, as water-lilies have generally to be viewed from some distance. And in this group there is no odor to invite a closer inspection.

ALWAYS IN BLOOM

Tender water-lilies bloom of necessity. Once they are started, they seem unable to stop. This is eminently true of the night-bloomers. They need no care during the growing season. Strong plants should be set out when warm weather is fully established. Wintering is not so difficult as for the day-blooming kinds. The night-bloomers may be taken from the pond either in their



Nymphaea Omarana, always in bloom from July to frost. The color is a glowing magenta

tubs, or with a large ball of earth, in October. They are then allowed to dry off slowly. In a month's time there should remain from each plant one or two small tubers. Sometimes the tuber is smooth and oval; sometimes it is of a very irregular shape. It is kept in dry sand as prescribed for the day-blooming kinds. In February or March the tuber is planted in sand and sunk in a warm tank. Soon it sends out a host of shoots. These mature one by one. They may be broken off and potted separately as soon as they have one or two floating leaves. Each tuber, therefore, of the night-blooming water-lilies will produce enough plants to stock a large pond. It is a wise precaution to keep one or two plants in small pots all summer, just to form tubers. The old plants sometimes rot completely when taken in.

Seedlings are very easily raised. Sow seeds in January or February, as directed in the July number. Keep the young plants growing rapidly, and fine specimens may be had the same season. They come on almost as quickly from seeds as from tubers. But only the whites can be relied upon to come true to seed. Our reds and pinks are all hybrids, and will produce a great variety of tints from seed. Of course there is a pure red species, *Nymphaea rubra*, from which the hybrids have derived their color. But in spite of the offerings in catalogues, I am convinced that the true *N. rubra* is not in America. Its home is in India. Will not some one import a pure strain?

For the curiosity seeker, we must mention here an odd species from South America, the Amazon water-lily (*Nymphaea Amazonum*; known in the trade as *N. ampla*). It needs the same treatment as those just described, though requiring a little more heat. The leaves are bright green, smooth edged, and of a graceful oval shape. The flower is yellowish white, and four or five inches across. It floats on the water like the hardy kinds. The bud rises just above the water surface to-day, let us suppose. Between three and four A. M. to-day it opens to a narrow cup-shape, and closes again before six. To-morrow it begins to open about half past six in the evening, and by eight it has four white petals spread out around a firm white bud. Thus it remains until half past three in the morning,

when the whole flower bursts into full bloom. It thus remains spread for about fifteen minutes; by six o'clock it is entirely closed, and is already retreating into the water. There are several other kinds in South America of unknown, but probably similar, habits. They are only likely to appeal to the night watchman.

THE GIANT VICTORIAS

The queen of all the water-lily tribe, if not of the whole vegetable world, is the wonderful night-blooming Victoria. Everyone should know its gigantic saucer-shaped leaves. They are often six feet across, perfectly circular in outline, with the margin turned up, four to eight inches at right angles to the water surface. Each leaf is a veritable boat, with capacity to float the weight of a man. The under side of the leaf presents a marvelous network of girder-like veins for the support of the giant structure. A strong plant should have three or four such leaves in perfect condition at one time.

The flower is no less remarkable. It floats on the water, and regularly reaches twelve to eighteen inches in diameter. In appearance it is a huge and very double water-lily. The numerous petals are delicate, almost like chiffon, and spread out widely in every direction. In spite of its size, there is nothing coarse about it. Let us watch one open. About four o'clock in the afternoon, the great brown prickly bud looks very forbidding. Soon a most delicious fragrance assails our nostrils; it speaks of apples, peaches, pineapples—what a friend of mine would call a "symphony" of scents. We look and see that the pale petals are showing through four crevices in Victoria's bud. As evening advances the great creamy blossom opens fully, and the odor becomes almost

oppressive. Next morning, about nine o'clock, the flower closes. The second evening it opens an hour or two earlier than before. It has lost all of its scent, but has assumed a pink color. On the second morning it looks half wilted, and during the day it descends slowly into the water. The Victoria blooms almost continuously after it once gets started. But it requires a long season and a good deal of heat.

It is in respect to cultivation that the two species of Victoria are most readily distinguished. The royal water-lily (*V. regia*), can scarcely be managed without continuous artificial heat. Its seeds germinate best at about 90° F. Tricker's Victoria (*V. Cruziana*, known in the trade as *V. Trickeri*), is nearly as easy to grow as the tender water-lilies. Its seeds germinate best at 65° to 75° F. Sown in January or February, good plants can be had for the summer. It is desirable to have artificial heat in the pond, so the plants can be set out in May. If the water is maintained at 80° to 85° F., the plants should flower in July. It will do very well, however, to set out large plants of Tricker's variety in the middle of June (at Philadelphia), in a shallow, sheltered, sunny pond. Though the plant is perennial in its native haunts, it is not practicable for us to winter the mature specimens. It is always treated in gardens as an annual. *V. Cruziana* often comes up in the ponds at Riverton, N. J., from stray seeds of the previous season. Such plants bloom in late August and September, but do not ripen seed.

Nearly allied to Victoria is the Gorgon plant (*Euryale ferox*), of Indo-China. It has small flowers whose royal blue petals make a brilliant contrast with the red inner surface of the sepals. The flowers, however, are not often seen, and sometimes do not open

at all. The leaves are circular, two or three feet across, without any upturned border. It is cultivated like *Victoria Cruziana*, but is more hardy.

KEY TO THE TENDER NIGHT-BLOOMING WATER-LILIES

Leaves with upturned margins—	Victoria
Sepals smooth above	V. Cruziana
Sepals prickly to the tip	V. regia
Leaf margins not turned up—	
Leaf peltate, entire (not cleft)	Euryale ferox
Leaf cleft on one side	Nymphaea
Leaf margin smooth	N. Amazonum
Leaf margin sharply toothed	Lotos group
Flowers pure white—	
Petals spreading flat	N. dentata and varieties
Cup-shaped	N. Lotus
Flowers pink—	
Delicate pinkish white; cup-shaped	Jubilee
Blush pink; cup-shaped	Smithiana
Light pink; opening flat	delicatissima
Pure pink; cup-shaped	Deaniana
Pink to red; cup-shaped	Kewensis
Pink; cup-shaped	Sturtevantii
Flowers red—	
Magenta; 10-12 in. across	Omarana
Red; 6-10 in. across	Devoniensis
Red; 6 in. across	Columbiana
Deep red; 8-10 in. across	Geo. Huster
Crimson; 9-10 in. across	F. Trelease

The differences between the water-lilies of the lotos group are too slight to express by an analytic key. I never could do better than to arrange them in a linear series according to the color of the flower. Indeed, of the hybrid *Kewensis* it is positively stated that but one plant was raised originally, and it died without leaving any progeny. What we now know as *Kewensis*, therefore, bears the name only by courtesy. It is a new cross which came out so nearly like its predecessor as to be horticulturally the same.

A Rare Early Lily Growing Ten Feet High—By E. V. W. Long Island

PLANTING EREMURUS BEFORE SEPTEMBER 1ST IS THE SECRET OF SUCCESSFUL CULTIVATION

OF THE more unusual plants of the hardy border in early summer commend me to the eremurus. The plants are not often seen because they are both expensive and somewhat difficult to grow. At all events, many people say so but others again say they can grow *Eremurus robustus* (the best of the family) with great ease if one or two little details are considered.

Of prime importance, perhaps, is this rule: Plant in August, and positively not later than September 1st. The dealers who have had most experience always refuse orders for delivery at a later date than that.

The peculiar, almost weird fact of this strong sturdy spike bursting through the ground in the earliest days of spring, and growing apace until it reaches a height of as much as ten feet in extreme cases (an average height under ordinary cultivation is six to eight feet) is indescribable. The individual flowers, which clothe the spike for more than half its length, have a diameter of about one

and one-half inches, and are of a pale pinkish lilac color. The plant is allied to the asphodels and St. Bruno's lily, but may well be likened to a huge hyacinth, in which the flowers, instead of being bell-shaped are flatly expanded, very much like those of the Star of Bethlehem.

Flowering at the end of May, this giant flower-spike, standing with all the character and dignity of the hollyhock (which comes into notice later in the season) is especially valuable in the garden because it so overtops everything around it. The flowers open in succession, from the bottom of the spike, and the whole period of bloom occupies two or three weeks. After flowering, both the spike and leaves disappear, leaving nothing to be seen above the ground, and the roots should therefore be put out where there is little likelihood of their being injured during summer cultivation.

With so expensive a plant (costing not less than \$2 for a four year old flowering size

root) one needs take a little extra care in setting out. Select a situation that is thoroughly well drained, and facing the south. The root itself consists of a crown, with a great number of radiating, fleshy roots, as thick as an ordinary lead pencil, the whole thing looking like a gigantic, many-legged spider, perhaps eighteen inches across. These roots are extremely brittle, and need careful handling, much the same way as we plant four-year-old asparagus roots, in an ample hole, having a slightly elevated centre. Carefully work the soil in among the roots when planting, and set so as to have the top of the crown about two inches below the surface of the soil.

When winter approaches, a very light mulch of litter to prevent alternate thawing and freezing is necessary.

When growth begins in early spring, in order to save the growing spike from injury by frost, it should be covered during cold snaps and every night by a box.



THE PALE PINK FLOWERS OF EREMURUS APPEAR IN MAY

September 1st is the latest date for planting the roots of this mammoth of the lily family. Select a well drained soil and give a very light mulch of litter in winter. Protect the growing tip from late frosts in spring. *E. robustus* grows eight to ten feet high

A Garden of Pink Flowers—By Helen R. Albee New Hampshire

THE FIRST ARTICLE IN A SERIES OF "COLOR STUDIES" EMPHASIZING THE ABUNDANCE OF PLANTS FROM WHICH A HARDY BORDER CAN BE MADE TO SUIT ONE'S FANCY, RATHER THAN HAVING A HARLEQUIN JUMBLE OF COLOR

IN ARRANGING my garden I have adopted a color scheme by which pink, red, blue and yellow flowers are planted separately and by a careful selection of plants it is possible to have a continuous bloom of the same color throughout the season. With all of these white flowers are used to harmonize the colors.

This garden is in the White Mountains of New Hampshire and the dates recorded are for that region only, although, owing to its peculiarly sheltered location, the season is usually as advanced as in the latitude of Boston. The first spring flower appears about the 20th of April and the season ends usually by the middle of October.

Special attention has been given with reference to the time and length of blooming and relative height of plants, which are set quite close together, seldom more than four inches apart. This secures a loose mass of color to which the natural foliage makes an excellent background. While the earlier plants are in flower the later ones are still of low growth, and these early ones are cut to the ground as soon as they have bloomed to make room for the later plants.

Cutting off the coarse lower leaves of the perennials not only economizes space, but also induces earlier flowering. The common red campion (*Lychnis dioica*, var. *rosea*), which flowers throughout the season, has lower leaves which normally spread over an area of eighteen inches. If these are stripped off, six inches of space will suffice. Hollyhocks, foxgloves, bell-flowers, and Incarvillea are also amenable to this treatment.

The earliest flowers of spring are from the

bulbs. I buy in named varieties, and find the most pleasing of the hyacinths are Maria Cornelia (single), and Lord Wellington, (double); of the tulips, Rose Luisante, and Rose Aplat, (single), and Couronne des Roses (double), give best results. All these varieties are entirely hardy, but I give them a little mulch in the late autumn. Following the bulbs comes the moss pink (*Phlox subulata*).

A PINK FORGET-ME-NOT

One of the earliest plants to flower is the pale pink forget-me-not (*Myosotis alpestris*, var. *rosea*). There is a popular idea that blue is the forget-me-not color, but there are also pink and white varieties. This pink variety blooms the second year from seed, and is perennial. It also self-sows. The plant is bushy, with flower-stalks twelve inches long. It is an excellent border plant, and can be multiplied easily by division of the root. If the flowers are cut freely, the plant will continue to bloom throughout May and June. Still later bloom can be had by cutting off the early buds of some plants. When a plant is thus thwarted in its normal season, though the time of blooming may be controlled, in a measure, yet it is at the expense of size. For instance, if you nip out the tops of the perennial phlox when the plants are not more than eight inches high, you retard the blooming two weeks. You also get a branching growth, but the flower heads, as well as the individual flowers, will be smaller.

The most graceful of all the pink flowers is the columbine (*Aquilegia vulgaris*), growing from one to three feet high. Its gracefully cut foliage alone is attractive. The nodding



The most graceful flower of early summer is the columbine. The single varieties are preferred

flowers two inches across that resemble a little circle of cups with long curved spurs are carried on tall stalks. Exact colors are hard to reproduce from seed, as columbines are cross-fertilized by bees. From a small package of seeds taken from a pale lavender colored plant I secured at least six shades of pink, old rose and red. Therefore it is necessary in following a color scheme to grow the young plants elsewhere, transplanting them in the early autumn after you know their colors. Free cutting prolongs the season of bloom from May through July.

THE STATELIEST FLOWER OF ALL

The handsomest June flowers are the peonies, which come in all tones of pink. They should be planted out in September.

Do not omit the old Sweet William (*Dianthus barbatus*). Once having secured a desired color, give the plant plenty of room to spread and divide the roots. With free cutting Sweet William blooms until frost.

A favorite among the annuals is the double Clarkia. It grows two feet high, the slender stalk bearing numerous double flowers of pale or deep pink, one and one-half inches across. It recalls the double balsam, but lacks the superabundant foliage of that plant. Beginning toward the end of June, it blooms for six weeks.

A superior form of the German catchfly (*Lychnis Viscaria*, var. *splendens*), is preferred over the type because of its brighter color. The plant makes a low tuft of slender leaves from which arise many long stems surmounted by raceme-like clusters of bright rose-pink flowers. This is a perennial, is easily produced from seed, and blooms through June and July.

A WEALTH OF POPPIES

July is rich in pink flowers that continue to bloom until frost. Without question the



The old cosmos often does not flower before frost kills it. The newer "early hybrids" flower in July, but are even more tender, and do not grow so tall



In the improved strains of zinnia there are pure pink colors which are welcome in early fall

most beautiful of all are the poppies. Particularly do I like the annual Shirley poppies (*Papaver Rhæas*, var. *Shirley*), with a daily succession of flowers, measuring often three inches across, in shades of pink ranging from blush white with pink margins to a deep rose. If seed is sown in autumn, plants begin to bloom in June, and are over in a month; but from seed sown the end of April flowers are to be had by the first week of July.

The peony-flowered form of the opium poppy (*P. somniferum*, var. *paoniaeflorum*) is an annual of very different habit, its large double flower of smooth-edged petals resembling a peony. It is a sturdy plant from three to four feet in height, with bold recurving notched leaves, and bearing from three to six flowers on long stems. It is much more showy than the Shirley poppy, and the flower lasts several days, whereas the Shirley drops in a day. Some of the peony poppies have a tufted centre, and an encircling collar of large outside or guard petals. All poppies require a rich, light soil, moisture and full exposure to the sun.

Of the midsummer flowers the pink Canterbury bells (*Campanula medium*), single and double, are the most striking. They grow two feet high, and bloom practically the entire second season. The flowers are bell shape, two inches long, and last for a week. The first ones appear at the bottom of the flower stalk, and by the time the top-most buds are in bloom, the plant begins to flower again from lateral branches at the bottom, thus keeping up a curious succession. The single varieties are the more beautiful.

THE EARLIEST COSMOS

Those who have become discouraged over the tall cosmos will be glad to learn of the newer "early hybrids" which grow three feet high and have large, pale rose-pink flowers resembling anemones. Planted by the first of

May, this variety begins to bloom by the first of July when only a few inches high, and continues to branch, throwing out clusters of flowers at the end of long stems until the plant becomes quite a large bush.

The mammoth variety is so late in blossoming that in many places it is killed by frost while still in bud. The early variety is a little less hardy.

One wonders why the perennial pea (*Lathyrus latifolius*), a hardy perennial vine, which makes a heavy growth of many vines four to five feet long from a single root, is so little known. While it resembles the sweet pea to a certain extent the clusters of deep pink blossoms are more numerous, larger, and more showy, but they lack fragrance. The seed pods should be removed as soon as formed, to insure a profusion of bloom



Dahlia A. D. Livoni is pure pink and very free flowering. One of the best of its class

from July until frost. It needs a stout support.

Four other flowers that produce unusually fine effects in July are the hollyhock, single and double, pale pink to deep rose; sweet peas; annual phlox; and a pink variety of the cornflower (*Centaurea Cyanus*).

In August when the full heat arrives all the pink flowers named as flowering in July are still with us. To these are added:

The large, mallow-like flowers of *Lavatera trimestris*, three inches across and borne on a bush three feet high are, to my mind, among the most beautiful flowers of the whole season. They are of a lovely shell pink, delicately veined with carmine and broadly funnel shaped. The abundant foliage furnishes a fine contrast to the pink blossoms, which are produced until frost.

A plant of rare beauty is the imperial branching larkspur, a hardy annual one foot high literally covered with upright panicles of rose-pink spurred flowers. It withstands

early frosts, and remains fresh two weeks after cutting.

Other August flowers that are particularly fine are the perennial phlox and the dahlia, of which there are many beautiful pink varieties. I have not grown them for want of sufficient space—but they are among the best of ornamental plants for autumn flowering.

WHEN THE GLADIOLUS ARRIVES

The most attractive flower which is added in September is the gladiolus (Lemoine's hybrids, mixed pink shades; also *America*). The spikes begin to bloom at the base, and the flowers continue fresh so long that usually the spike is in bloom to the tip before the lower flowers fade.

The gladiolus requires a rich light soil and much sun and moisture. The bulbs should be planted at least four inches deep, about the first of May. To carry the bulbs over for another year lift the plants after the first light frosts in autumn—but before the ground freezes; cut off the tops, and let the bulbs dry in the sun before packing them away for the winter in a place where they will not freeze.

Among the few late flowers left to adorn the garden in October is the zinnia. There is a new variety of the curled and crested zinnia (*Z. crispa*, var. *flore-pleno*) which grows three feet high and begins to bloom in midsummer, reaching perfection in September and early October. It has a branching habit, and bears large flat heads of salmon, pale rose, and a deeper rose-pink. This improved strain is very different from the stiff old fashioned magenta zinnia in that the petals are longer and curling, the heads larger, and the colors are really beautiful.

Last of all come the chrysanthemums whose arrival foretells the frost. They are the



The pink variety of the Canterbury bell blooms throughout the season. Excellent for cutting



The old fashioned single hollyhock finds especial favor because of its stately appearance and pure color

last effort of the garden here, as also in regions farther south.

PINK POSSIBILITIES

Here is a wealth of material from which you may select for a pink garden. I have made a personal trial of them all. In ordering be careful to choose pure pink varieties with no solferino tone.

FLOWERING IN APRIL		
COMMON NAME	SCIENTIFIC NAME	HEIGHT IN FEET
P. Hyacinth *	<i>Hyacinthus orientalis</i>	1
P. Tulip *	<i>Tulipa suaveolens</i>	1
FLOWERING IN MAY		
S. Wild rosemary	<i>Andromeda polifolia</i>	2
P. Columbine	<i>Aquilegia vulgaris</i>	3
S. Rhodora	<i>Azalea Canadensis</i>	3
P. Bleeding heart	<i>Dicentra spectabilis</i>	2
P. Gas plant	<i>Dictamnus spectabilis</i> , var. <i>rubra</i>	2
P. Eremurus	<i>Eremurus robustus</i>	8
P. Alpine campion	<i>Lychnis alpina</i>	1
P. Forget-me-not	<i>Myosotis alpestris</i> , var. <i>rosea</i>	1
P. Moss Pink	<i>Phlox subulata</i>	1
S. Flowering almond	<i>Prunus Japonica</i> , var. <i>flore-pleno</i>	5
S. Double flowering crab-apple	<i>Pyrus angustifolia</i> , var. <i>flore-pleno</i>	10
FLOWERING IN JUNE		
B. Allegheny vine†	<i>Adlumia cirrhosa</i>	10
P. Thrift	<i>Armeria plantaginea</i>	3
S. Smooth azalea	<i>Azalea arborescens</i>	4
A. Feathered coxcomb	<i>Celosia argentea</i>	2
P. Pyrethrum	<i>Chrysanthemum coccineum</i> , var. <i>grandiflorum</i>	1 1/2
A. Clarkia	<i>Clarkia elegans</i>	2
P. California rose †	<i>Convolvulus Japonicus</i>	15
P. Sweet William	<i>Dianthus barbatus</i>	1 1/2
B. Heddewig's pink	<i>Dianthus Chinensis</i> , var. <i>Heddewigii</i>	1
B. Japanese pink	<i>Dianthus Chinensis</i> , var. <i>salmonius flore-pleno</i>	1
P. Maiden pink	<i>Dianthus deltoides</i>	1
P. Pheasant's eye	<i>Dianthus plumarius</i> , var. <i>Cyclops</i>	1
B. Foxglove	<i>Digitalis purpurea</i>	4
P. Incarvillea	<i>Incarvillea Delavayi</i>	3
A. Tall morning glory	<i>Ipomoea purpurea</i>	10
P. Ragged-robin	<i>Lychnis Flos-cuculi</i> , var. <i>plenissima</i>	1
P. German catchfly	<i>Lychnis viscaria</i> , var. <i>splendens</i>	1 1/2
A. Ten week stock	<i>Matthiola incana</i> , var. <i>annua</i>	2
P. Peony	<i>Paonia officinalis</i> , var. <i>rosea</i>	3
S. Double flowering peach	<i>Prunus Persica</i> , var. <i>camelliflora plena</i>	4
P. Oriental poppy	<i>Papaver orientale</i> , var. <i>Salmon queen</i>	2
S. Rose acacia	<i>Robinia hispida</i>	8
S. Sweet brier rose	<i>Rosa rubiginosa</i>	6
S. Universal favorite rose †	<i>Rosa Wichuraiana</i> , var. <i>Universal Favorite</i>	20
P. Autumn catchfly	<i>Silene Schaffa</i>	1 1/2

P. Tunica	<i>Tunica Saxifraga</i>	1
P. Queen of the prairie	<i>Ulmia rubra</i> , var. <i>venusta</i>	8
P. Jupiter's beard	<i>Centranthus ruber</i>	3

FLOWERING IN JULY

A. Sand verbena	<i>Abronia umbellata</i> , var. <i>grandiflora</i>	1 1/2
P. Hollyhock	<i>Althaea rosea</i>	5
A. Snapdragon	<i>Antirrhinum majus</i> , var. <i>Niobe</i>	1
A. China Aster	<i>Callistephus hortensis</i>	1 1/2
B. Canterbury bell	<i>Campanula Medium</i>	2
A. Cornflower	<i>Centaurea Cyanus</i> , var. <i>3</i>	3
P. Crown vetch	<i>Coronilla varia</i>	1 1/2
A. California poppy	<i>Eschscholzia Californica</i> , var. <i>carminea</i>	1

A. Gilia	<i>Gilia dianthoides</i>	1 1/2
A. Balsam	<i>Impatiens Balsamina</i>	2
S. Mountain laurel	<i>Kalmia latifolia</i>	4
P. Perennial pea †	<i>Lathyrus latifolius</i>	5
A. Sweet pea †	<i>Lathyrus odoratus</i> , var. <i>Katherine Tracy</i>	5
A. Rose of Heaven	<i>Lychnis cali-rosea</i>	1
A. Mallowwort	<i>Malope trifida</i> , var. <i>grandiflora</i>	3
A. Satin flower	<i>Eriogonum amœna</i>	1
A. Peony poppy	<i>Papaver somniferum</i> , var. <i>paoniaeflorum</i>	2
A. Shirley poppy	<i>Papaver Rhœas</i> , var. <i>Shirley</i>	1 1/2
A. Annual phlox	<i>Phlox Drummondii</i>	1
P. Obedient plant	<i>Physostegia Virginiana</i>	3
S. Great laurel	<i>Rhododendron maximum</i>	8
B. Centaury	<i>Sabbatia campestris</i>	1
A. Soapwort	<i>Saponaria Calabrica</i>	1
A. Butterfly flower	<i>Schizanthus Wisetonensis</i>	2
A. Sweet William	<i>Silene Armeria</i>	1
S. Purple-tipped	<i>Spiraea Japonica</i> , var. <i>superba</i>	4
A. Tridax	<i>Tridax bicolor</i>	1 1/2
A. Verbena	<i>Verbena hybrida</i>	2

FLOWERING IN AUGUST

A. Mist flower	<i>Ageratum Lasseauxii</i>	2
P. Dahlia	<i>Dahlia A. D. Livoni</i>	5
A. Larkspur	<i>Delphinium Ajacis</i>	1 1/2
A. Lavatera	<i>Lavatera trimestris</i>	3
P. Perennial phlox	<i>Phlox paniculata</i>	2
A. Palafoxia	<i>Polypteris Hookeriana</i>	2
P. Bouncing Bet	<i>Saponaria officinalis</i>	1 1/2
A. Sweet Scabious	<i>Scabiosa atropurpurea</i>	2

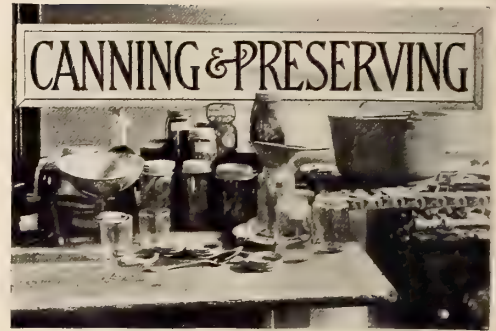
FLOWERING IN SEPTEMBER

P. Japanese anemone	<i>Anemone Japonica</i>	2
P. Pompon Chrysanthemum	<i>Chrysanthemum Indicum</i>	2
A. Cosmos	<i>Cosmos bipinnatus</i> , var. <i>Early hybrid</i>	3
P. Gladiolus *	<i>Gladiolus Childsii</i>	3
A. Youth-and-old-age	<i>Zinnia elegans</i>	3

NOTE—The initial letters in front of each name indicate the duration of the plant: A—annual; B—biennial; P—perennial; S—shrub. Plants marked * are bulbs; the † indicates a vine or trailer.



Gorgeous masses of pink in the earliest springtime. The moss pink (*Phlox subulata*)



Easily Made Pickles

PICKLES may be divided into sweet, sour, salt or dill, mustard, chow chow and catsup. Sweet pickles are usually made from fruit such as peaches, green pears, tomatoes, watermelon rind, citron etc.

They are made—giving a general rule which must at times be varied—by placing the fruit after being prepared into boiling brown sugar and vinegar to which have been added spices. The fruit is boiled but a short time for peaches, longer for watermelon rind, then placed in jars or stone crocks and the boiling hot syrup poured over them; for three successive mornings the syrup should be drained off, reboiled and poured over the fruit. It sounds like an awful lot of work and I "dodged" when I first made sweet pickles. Now the re-boiling comes as a matter of course and my sweet pickles are one of our favorite dishes. Watermelon rind is the most economical for the watermelon's overcoat is otherwise a waste commodity. Sour pickles are usually thought of as small cucumbers, "mixed" pickles having an addition of cauliflower, onions and beans. There are many more, however, and some of them worth trying, for instance pearl onions, martynias, young black walnuts, nasturtium seed, lemons, Jerusalem artichokes, green tomatoes. Many of these first require to be soaked in brine—that term in pickle language invariably means salt and water strong enough to float an egg. The article to be pickled is placed in the brine for a specified time, then removed, goes through various operations of washing and wiping; then is put into boiling spiced vinegar or has the fluid poured over it. Mustard pickles have a mixture of vinegar, sugar, flour, and mustard poured upon them after they have been through the brine.

Chow chow, or piccallili is a concoction of chopped green tomatoes, celery, onions, cabbage and peppers, to which is added sugar, vinegar and spices; the whole boiled slowly until tender. We consider it without parallel in the sour pickle line. Under this same head comes an uncooked pickle that is fine and very easy to make; it consists of cabbage, red and green pepper chopped fine, to which is added various spices.

Catsup consists of ripe red tomatoes, peppers, garlic or onions, vinegar and spices and sometimes sugar. This is cooked slowly, strained and bottled. There are surely few things which can take the place of catsup with cold meat.

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NOTE.—Those marked with a * can be raised in water.

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AUTUMN

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Canning and Cooking Tomatoes

THE principal part of the nutritive quality of the tomato is contained in the juice, therefore the practice of drawing off the juice, in order to have more solid packed tomatoes in canning is to be condemned.

The best way to can tomatoes is simply to pack them without peeling into wide-mouthed jars, half fill the jars with cold water; put the jars in a large saucepan, or the wash boiler, with water to reach half-way up the jars, bring the water to the boiling point, boil half an hour, take out the jars, fill them to overflowing with boiling water, and seal. By this means you get all the value of the tomato. Should you have tomatoes left over after a meal, don't throw them away, but can them. Just a jar at a time will do after a meal, while you are washing your dishes, and in a remarkably short time you will have a goodly array for a "rainy day." The green ones can also be made into jam. They are better than the red for this purpose.

I give recipes here for the two favorite dishes in our family: baked or scalloped, and stuffed tomatoes.

Baked tomatoes: Remove the skins; this can be done by scalding; slice thickly, spread a layer in the bottom of a well-buttered baking dish, cover with a layer of bread crumbs and small pieces of butter, sprinkle with pepper and salt. Repeat these layers until the dish is quite full, cover with fine bread crumbs or fine cracker crumbs. Bake about an hour in a moderate oven.

Stuffed tomatoes: For this dish you must select large, round, smooth tomatoes—about six. Put them, stalk end down, in a baking pan. Cut a thin slice from the smooth end of each; take out all the pulp and juice you possibly can without spoiling the shape of the tomato. Then mix the pulp and juice with bread crumbs, chopped ham or chicken, and salt, pepper, a little butter and half a teaspoonful of onion juice; fill each tomato with the mixture, put the tops back, and bake about three-quarters of an hour. This makes a nice supper or luncheon dish.

Tomatoes are used in so many different ways—raw, out of the hand, like an apple; sliced, also raw; cooked in a variety of ways, and for soup, canned and preserved—that any style can be used for one or other of the purposes. Each one to his taste. The colors vary considerably from purple red to pale pink, also yellow.

The yellow tomato we have tried, and found it almost entirely without the "tomatoey" flavor, too mild and sweet, and it made a poor soup. There is, I think, a deficiency of acid in them.

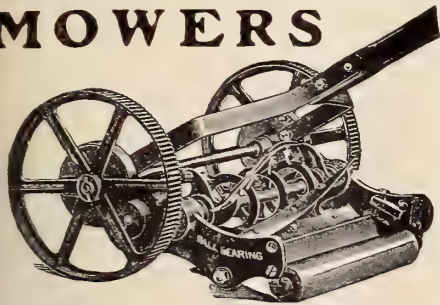
There are also cluster tomatoes called currant and cherry. They are very small, and not much used. These small tomatoes are used principally for pickles and preserves and they keep their shape well in canning. They are useful also for decorative purposes.

Green tomatoes need not be ripened at all—they are very good as pickles or jam. They are fine dipped in egg and bread crumbs and fried. They make an excellent dish to serve with chops, steak, or ham.

New York

E. M. BARRON.

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Plant Peonies in September

IF YOU are intending to plant peonies, September is the very best time in the year to do it, for then plants have sufficient time to form new roots before the cold weather sets in. Peonies start to grow so early in the spring that it is impossible to successfully move them at that season.

Dig out the soil to a depth of $2\frac{1}{2}$ or 3 ft., and replace it by rich soil from the compost heap. Do this at least one or two weeks before planting, so that the soil may settle. When planting, be sure to get the crown two inches below the surface of the soil.

Although most peonies may remain indefinitely without dividing, yet it is better to divide the plants once in seven or eight years, for in some varieties the centre dies, leaving an irregular ring. Now is the time to do it.

One peony specialist says that the roots may be divided and moved just as soon after August 15th as the buds are ripe, and not later than October 1st. Lift the old root, remove the old leaf and flower stalks, and divide it into as many pieces as are wanted, taking care to see that each piece has a bud. Should there be some pieces which do not have buds, plant them by themselves. They will grow, but not until the second year will leaves show above the ground.

As soon as planted, water thoroughly, and see to it that the soil about the roots always has an abundance of moisture. When the ground freezes give the roots a mulch of strawy manure.

New York.

PHINEAS NOLTE.



The Californian's Reminder

THIS is the transplanting month; have beds well manured and worked over in which to plant out pansies and stocks, and sow more seed of each as well as of cosmos, gypsophila, and sweet peas. This is the first month for planting Dutch bulbs for earliest blooming. Native and Australian tree and shrub seeds may be planted during September.

A few more sorts of vegetables may be planted in September than was advisable during August. The hottest weather is now past, and we must begin to look forward to winter crops. The following may be planted: Beets, beans, cabbage (seeds or plants of early sorts), carrot, cauliflower (seeds or plants), kale, kohlrabi, lettuce, onion (seeds or sets), parsnip, peas, radish, spinach, turnip. You should now have cabbage and cauliflower to transplant.

Los Angeles.

ERNEST BRAUNTON.

LISTEN!

VERY HOT SUN
VERY HOT IRONS
VERY HOT WATER
damage and fade delicate fabrics—besides, isn't your COMFORT worth considering?

Pearline
washes perfectly in
COLD OR LUKEWARM
Water without Rub-
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PEARLINE makes

Cool washing for hot weather

The lamp is yet to be made for which I haven't made a chimney that fits.

MACBETH on lamp-chimneys means fit and freedom from all chimney troubles.

A MACBETH chimney doesn't break from heat.

My Index gives a fuller explanation of these things and may be had for the asking. Address,

MACBETH, Pittsburgh.

SEPTEMBER IN THE ADIRONDACKS

No finer place can be found than the Adirondacks in September.

The air is cool and bracing, the scenery beautiful and the sense of perfect rest that comes with the night is delightful.

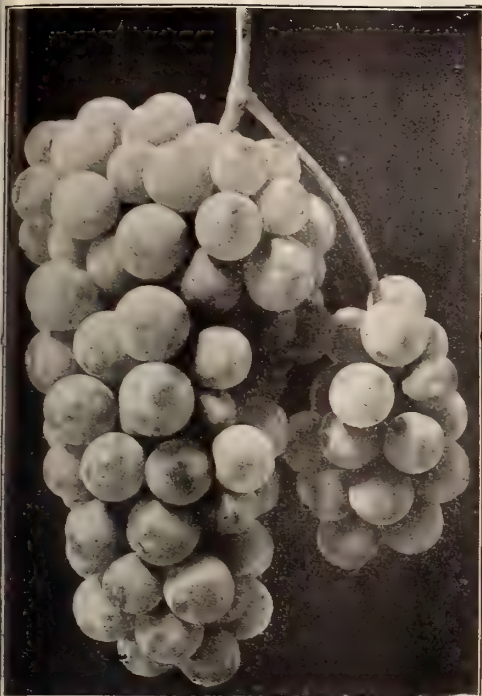
This wonderful region is reached from all directions by the



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For a copy of "The Adirondack Mountains and How to Reach Them," send a two-cent stamp to George H. Daniels, Manager General Advertising Department, Grand Central Station, New York.

C. F. DALY,
Passenger Traffic Manager,
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Grape Vines

NO garden is complete without a sufficient number of grape vines to supply an abundance of this delicious fruit. For 40 years we have been furnishing high-grade vines for this purpose.

We will send ten large vines of the best table varieties, including three red, three white and four black for \$1.00, delivered free. Send for our elegant Illustrated Descriptive Catalogue and Price-list. It will tell you what and how to plant, cultivate and train grape vines, currants, gooseberries and other small fruits.

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Indian Swatiska Pin, 26c.

These pins are solid silver, hand-hammered by Navajo Indians from coins. Genuine, popular, antique and pretty. We offer various styles at greatly reduced prices. Swatiska Stick Pin, 3-8 inch plain, 26 cents; set with turquoise, 35 cents. Swatiska Brooch Pin, 9-16 inch, plain, 40 cents; set with turquoise, 50 cents. Swatiska Ring, all sizes, plain, 33 cents; set with turquoise, 45 cents. For other Swatiska articles, send for booklet.



Genuine Coral Necklaces, 18c.

Special Half Price Sale

Warranted genuine and made from the best imported rich color coral. We offer for limited time the following sizes at half regular prices: 14 in. ch



Necklace, genuine twig or rough coral with good clasp, regular 40 cents for 18 cents. Same thing in Chain 56 inches long, 42 cents. 14 inch Necklace of genuine coral beads, with good clasp, regular 60 cents, for 28 cents. Same thing in 56 inch Chain, 84 cents.

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KELLER'S HARDY ASTERS

HARDY GARDEN FLOWERS No. 8

The chief glory of the garden in the Fall is the riot of color furnished by the tumbling, billowy masses of the asters and golden rods. The golden rods turnish on y the yellow, but the asters have every shade of purple, violet, blue, lavender, pink and white. Because a prophet is not without glory save in his own country, our native asters were never taken seriously by American gardeners until they became fashionable in England, and the big English cultivators produced varieties with larger flowers and purer colors. The hardy garden really needs the violet of the New England aster in late summer when all else is conspiring in the whole gamut of yellows; and there is no color that is a better foil to the golden tints.

We have tried all the kinds in cultivation on both sides of the water, and offer below a few of the very best. We have others of equal merit for specific purposes, and will gladly tell you the relative merits of any in which you are interested. One beauty of the perennial aster is that they are permanent, and so hardy you cannot kill them. There is no fuss at all raising them every year from seed as you do with the China Aster, nor are they subject to numerous insects and diseases as are their annual brothers.



Let us help you plan a hardy garden this Fall that will give you bloom from frost to frost. We are specialists in hardy perennials, growing them exclusively—which means superior excellence of stock. Send for our 1906 catalogue.

J. B. KELLER SONS, Rochester, New York.

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A. ALPINUS—Flowers, bright purple, 8 inches, June.

A. ALPINUS ALBUS—Flowers pure white, 8 inches, June.

A. AMELLUS—Light blue, large, flowering in August, 12 inches.

A. BESSARABICUS—One of the best purple-flowered species, flowers large in late summer and early autumn, 18 inches.

A. CASSIUS—Flowers light lavender, covering the plant completely, August, 2 ft. These are late flowering, fine for massing shrubberies and borders.

A. GRANDIFLORUS—The finest of all, flowers often measure 2 inches in diameter and are a pretty violet blue, very late flowering, November, 18 to 24 inches.

A. MME. SOYNEUSE—Bright, rosy-lilac, compact grower, very free bloomer, 15 inches.

A. NOVÆ-ANGLIÆ RUBRA—Bright rose-colored, 4 feet, September.

A. LADY TREVELLYN—Pure white, September, 2 to 3 feet.

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A. SIBIRICUS—Flowers blue, 6 feet high, October.

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"We have used your Rex Flintkote Roofing for several years, and have found it satisfactory in every respect. Besides having good, lasting qualities, it is very easily applied, and it especially resists the ravages of acid, therefore we have applied it on several chemical plants in the last two years. As we have full confidence in this roofing, we would recommend its use on any roof. [Signed] R. HUGGER & BRO., Gen'l Contractors and Builders, Montgomery, Ala."

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Four Insect Pests that are Easily Killed Now

DESTROYING the winter homes is a most important detail in the control of our worst insect pests, many of which are easily attacked then, whereas in the active season they are hard to reach.

All insects pass through three or four stages in their development from the egg to maturity, and different insects pass the winter in different stages of existence: the grasshopper in the egg, the cutworm as a larva, the corn ear-worm as a pupa, and the white grub as a partly hardened May beetle. Late fall spading or plowing is the best method of controlling all these, though it may not be advisable for other reasons, yet where these four pests are very troublesome, it will usually be found the best method of exterminating them.

GRASSHOPPERS AND CUT-WORMS

The eggs of the grasshoppers are laid just under the surface of the soil, and get so deeply buried that they either fail to hatch, or the young are unable to emerge the next spring.

In the fall the cutworms enter the soil to the depth of three or four inches, where they hollow out small oval cells, and in which they remain until the next spring. By breaking up these cells and throwing out the worms to the influence of the changeable weather conditions after they have commenced hibernating, many of them are destroyed.

In the same way the corn ear-worms, which are such nuisances upon the tips of the ears of sugar corn, enter the soil in the fall, and form cells similar to those of the cutworms, in which they transform to the pupal stage. The pupae are easily killed by exposure to the weather, which is brought about by breaking up the cells in the digging.

WHERE THE JUNE BUG HIDES

The white grub is a pest of almost every garden crop, and very difficult to handle when its depredations are at their worst. The grub requires at least two seasons to become full grown, when it transforms to a pupa, and later to a beetle, the well-known May beetle or June bug, which flies in the lights and buzzes around the ceilings of rooms during the warm evenings of May and June. The beetles do not emerge from the soil until the following spring, existing during the winter in the earthen cells in a partially hardened condition, and without the brown color which exposure to daylight soon gives them. In this condition they are peculiarly helpless, and if disturbed in late fall are readily killed.

Wireworms, which are so bothersome by eating into seed corn, and necessitating replanting, may be attacked similarly.

Burying, as a result of fall spading, will destroy many other pests which pass the winter safely sheltered under rubbish, leaves stalks, and suchlike, which are to be found scattered over most gardens.

New Hampshire. E. D. SANDERSON.

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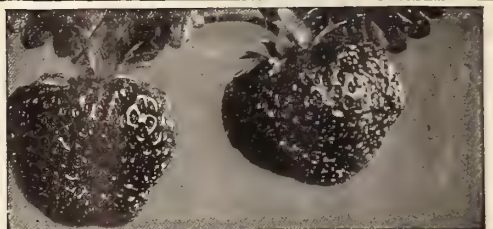
and a year's membership in the Flowerlovers' Club, 10c. This offer includes enough Freesias for a pot, my "Little Brown Book of Dutch Bulbs," my "Little Green Book for the Garden" next spring and the Flowerlovers' Bulletin as issued, with hints by Peter the Gardener—offer limited, send 10c. today.

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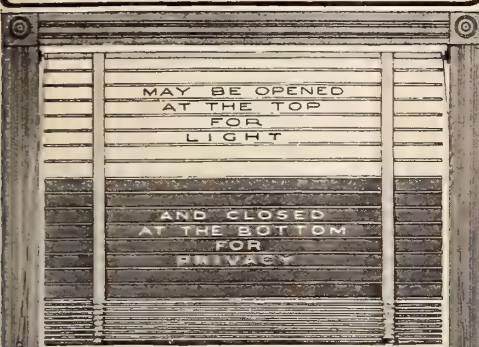
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Water For Your Country Home

IF YOU live in the country there is a way for you to enjoy *all* the comforts and conveniences of a *city water supply* without a penny for water tax.

It is accomplished by the **Kewanee System**. With the **Kewanee System** you get even *more* than city service, because, in addition to every benefit the latter affords, you may have—*Soft water* in your bathroom and laundry.

The **Kewanee System** is easily explained; it consists simply of having a **Kewanee Pneumatic Tank** set in your cellar or buried in the ground.

The water from *your own well or cistern* is pumped into the **Kewanee Tank**.

From the tank the water is *delivered under pressure* to the laundry tubs, kitchen sink, bathrooms, outside hydrants or wherever wanted.

When the tank is half full of water the air which originally filled the entire space will be compressed into the upper half of it.

It is this pressure exerted on the water which delivers it to the plumbing fixtures and hydrants.

An average pressure of 40 pounds may be maintained under ordinary conditions. This will carry water to a height of 80 feet, thus affording *splendid fire protection*.

You see that the *method*, while perfectly simple, is based on a thoroughly *scientific* plan.

The **Kewanee Water Supply Company** was the first to *apply* this principle successfully in supplying water to country houses, and after *ten years of experience* the system has proved to be entirely *practical* and it is rapidly growing in favor.

Over 5,000 **Kewanee Outfits** now in use. The old style elevated tanks are passing.

—Because they stand no show in competition

with the modern, no-trouble system—the **Kewanee System**.

The old fashioned gravity system meant pumping water *up* in order to get it *down* again.

Now, to give the necessary pressure for fire protection and service, the elevated tank must be located on top of a tall tower. This is expensive, unsightly and unsafe.

The water freezes in winter, becomes warm and stagnant in summer, and repairs are a big item of expense.

The attic tank doesn't give sufficient pressure for fire protection.

Its weight is apt to crack the plastering, and when it leaks (as it is pretty *sure* to do) your house is flooded. Just one such expensive accident may cost you many times the price of a **Kewanee Outfit**.

—Which *cannot* flood the house, because the tank is resting on *solid ground* where it can do no damage.

The installation of a **Kewanee Pneumatic Water System** in your country home means

- Plenty of pure, fresh water,
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It solves the country water problem completely.

The **Kewanee System** will take care of *all* your needs—for home, garden, lawn, stables, poultry houses, etc.

Our **Kewanee Outfits** are *complete*.

Not an engine only, which in itself cannot give you a water supply—nor a tank only, which is useless unless you have some form of pumping power—

But, we furnish the *whole* thing—a *complete system* of water supply.

Our engineering department is prepared to solve your water problem—no matter how difficult that problem may now appear.

Kewanee Outfits are made in sizes suited to the smallest cottage—or largest building—or group of buildings.

We guarantee every **Kewanee Outfit** to give *perfect service*.

Send for catalog No. 16 which gives names of users in your State—free if you mention this magazine.

Kewanee Water Supply Company, Drawer S, Kewanee, Ill.

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WILL POSITIVELY DESTROY

SAN JOSE, COTTONY MAPLE SCALE, PEAR PSYLLA, ETC.

Without Injury to the Trees. Samples, Prices and Endorsement of Experiment Stations on Application.

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Our collection comprises the choicest Large and Medium Trumpet, Poet's Double and other types of which the following are but a few.

	Per doz.	Per 100
<i>EMPEROR</i>	.50	\$3.00
Pure yellow—very large.		
<i>EMPRESS</i>	.50	3.50
White and gold—fine.		
<i>GOLDEN SPUR</i>	.50	3.50
Golden large trumpet.		
<i>GIANT PRINCEPS</i>	.25	1.50
Creamy white and yellow.		
<i>BARRII CONSPICUUS</i>	.25	1.50
Yellow—cup edged, red.		
<i>SIR WATKIN</i>	.50	3.00
Clear yellow—very large.		
<i>POETICUS</i> (Poet's Narcissus)	.15	.75
White—cup edged, red.		
<i>POETICUS ORNATUS</i>	.20	1.00
Improved form of above.		

For other varieties as well as a complete list of other bulbs, such as Tulips, Hyacinths, Crocus, Lilies, etc., also Hardy Garden Plants, Seasonable Flower and Vegetable Seeds, etc., see

**Dreer's
Autumn Catalogue**

Free on application to those mentioning this magazine.

HENRY A. DREER, 714 CHESTNUT ST., PHILADELPHIA, PA.



PEONIES



The wide range of delicate coloring, the immense size and profusion of bloom makes the Peony

the most wholesome of all garden flowers, the magnificence of the newer sorts rivaling the best features of the Rose. With beauty of foliage, freedom from disease and ease of culture, it is the peer of all hardy herbaceous perennials. Our collection consists of over 80,000 plants in 400 varieties, which always secure the highest honors at the leading exhibitions. Send for our illustrated catalogue containing thorough authentic descriptions and all the information required for selecting and planting this most popular plant of the day.

If you contemplate improving your grounds this fall, address our Landscape Department for advice on what and where to plant. We have 112 acres of choice trees, shrubs, evergreens and hardy plants grown especially for immediate landscape effects.

COTTAGE GARDENS CO., Ltd., Queens, Long Island, N. Y.

How to Keep Cut Flowers

IN the October and other numbers of THE GARDEN MAGAZINE the "Garden Club of Philadelphia" offered for competition three prizes of \$25, \$15 and \$10 each. The object of this competition was to ascertain the best method of keeping cut flowers fresh in private houses, which came from the greenhouse during the winter months.

The prizes have been awarded as follows:

First prize, Mrs. Will Carlton, Keene, N. H. Method: Clip the stems a little and give fresh water each morning. Set the vase containing the flowers in a pan of water in a cool place at night.

Second prize, Mrs. F. J. Lee, 806 South West St., Syracuse, N. Y. Method: Clip ends of stems each morning and put fresh cool water in vases that are clean and free from slime or odor. Remove any outside leaves from blooms that may be wilted or bruised, and place where they will not get direct heat from register or radiator. Put



Cut flowers last longest if you cut a little from the stems each morning and set the vase in a pan of water in a cool place at night

fresh water in vases again at night, and put in a cool place, near an open window, if not too cold.

Third prize, Miss Clara Cheney Smith, 55 Capitol Ave., Hartford, Conn. Method: Give fresh water every morning. Remove all foliage below the water line on account of decay. Never crowd stems, give plenty of room in the vase. Keep in a fairly cool place at night, removing flowers from the vase, and placing them in a large pail or foot-tub of fresh water so that the entire calyx of blossom, if possible, rests on the water, and the whole stem is immersed. Clip the stems only as they become discolored.

In this contest the club received thirty-nine different suggestions for keeping flowers. In order to award the prizes, a committee from the club held an eight day test, using roses exclusively. When these tests were over the committee were not satisfied with the result so another test was made using other flowers such as sweet peas, daffodils, mignonette, heliotrope and carnations. Seven subjects were tried but they only corroborated the results in the rose test.

ARTISTIC CONCRETE LAWN VASES



Fill up that bare place in park or campus, add to the attractiveness of your lawn or beautify your grounds by installing a handsome concrete vase, as shown in photo-engraving.

Our handsome lawn specialties are very reasonable and very effective when properly placed. Price, only \$5. Our stately

Concrete Hitching Posts

make the exterior look substantial and lend a very pleasing effect. Suitable for elegant homes. May be placed at either end of the driveway. Either vase or post at \$5 securely crated.

Machines for making them if desired. Catalog.

Medina Concrete Co.
36 Court St., Medina, Ohio.

The Agricultural Experts Association

GEORGE T. POWELL, President
120 Broadway, N. Y.

DEVELOPMENT of Country Places; Examinations made of Land with full reports and Suggestions for Improvement; Advice on General Management; Policies Outlined; Location of Buildings; Landscape Work; Orchard Development; Care of Forest Land and Live Stock. Correspondence invited.

FRANK HAMILTON Landscape Gardener

BRYANT BUILDING, 55 LIBERTY ST., NEW YORK CITY

PRACTICAL advice given on the laying out of your home grounds. 20 years' experience, 7 of which were in N. Y. City Parks. Terms \$10 per day and expenses. Office consultation free.

For Fall Planting

We offer for fall of 1906 an unusually large and well-grown stock of **Fruit Trees** for orchard and garden, **Ornamental Trees, Shrubs.**

ROSES

We have a larger and better supply this year than ever. Our assortments embrace all of the old favorites, as well as the newest kinds from the most celebrated raisers in Europe, including the NEW WHITE ROSE, FRAU KARL DRUSCHKI.

PEONIES AND PHLOXES

Of these showy, beautiful, hardy, easily-grown plants we offer the choicest kinds, selected with great care.

HARDY PLANTS

Including the most ornamental, flowering from early spring till late autumn, particular attention being given to IRIS, Japan and German.

Our beautiful illustrated descriptive catalogue (144 pages), a manual indispensable to planters; also descriptive list of novelties and specialties, mailed free on request.

ELLWANGER & BARRY

Nurserymen—Horticulturists

Mount Hope Nurseries

ROCHESTER, N. Y.

PLANT EVERGREENS

In August and September



A large Juniper being burlapped, preparatory to shipping—the ball has been combed out to show the fine fibrous roots.

Evergreens transplant successfully in August and September. The year's new growth has then matured, and there is yet time for them to become established in the new location before the winter. All our Evergreens lift with a compact ball of fibrous roots and earth.

Send for September Evergreen list.

A FEW SPECIAL EVERGREENS

Nordmann's Firs up to 10 ft. Blue Spruce up to 8 ft. Hemlocks up to 10 ft.
Retinisporas up to 10 ft. Norway Spruce up to 10 ft. White Pines up to 10 ft.

ANDORRA NURSERIES, CHESTNUT HILL
PHILADELPHIA, PA.

WILLIAM WARNER HARPER, Proprietor

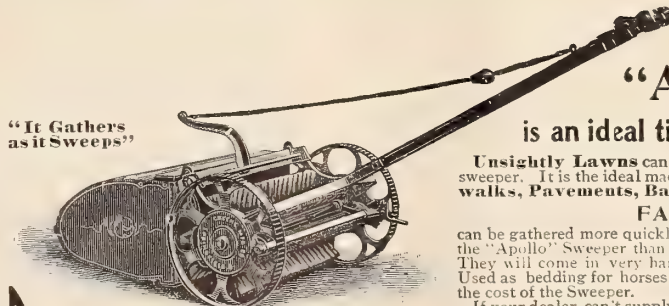
PLANT for immediate effect, not for future generations.

START with the largest stock that can be secured.

It takes **Over 20 Years** to grow such Trees and Shrubs as we offer.

We do the long waiting, thus enabling you to secure Trees and Shrubs that give an immediate effect.

"It Gathers
as it Sweeps"



THE
"Apollo" Sweepers
is an ideal time and labor-saving machine

Unightly Lawns can be made beautiful by using an "Apollo" lawn sweeper. It is the ideal machine for sweeping Lawns, Porches, Sidewalks, Pavements, Barn Floors, Factories, Warehouses, etc.

FALLEN LEAVES

can be gathered more quickly, easily and thoroughly, and in less time, with the "Apollo" Sweeper than with rake and basket, or by any other method. They will come in very handy for covering flower beds, tender roots, etc. Used as bedding for horses and stock they will soon save you more than the cost of the Sweeper.

If your dealer can't supply you, write us, and we will ship an "Apollo" Sweeper on 10 days approval. Write for our Free Booklet, illustrating and describing the various sizes we manufacture

THE GREENE MFG. CO., 34 Sycamore St., SPRINGFIELD, OHIO. (Good Canvassers Wanted.)



A Comfort as Warm and Light as Eider-down at a Fraction of the cost—and PURE

A genuine eider-down comfort to-day would cost fifty dollars, and even the genuine is *animal matter*. Comforts sold as "eider-down" for less, are filled with turkey and chicken feathers.

MAISH LAMINATED COTTON-DOWN COMFORTS are luxuriously *warm* and very *light*. At a fraction of the price, they have *every* comfort quality of eider-down, and are *pure*.

By a wonderful, new process the long fibres of the finest, pure, snow-white cotton are separated, curled and then woven into a thick, soft, downy piece. This continuous, *one-piece* filling is the same thickness at every point; no lumps, no thin places. It will *never* flatten; never lose the wonderful suppleness, lightness, and warmth that make it so delightful to sleep under.

Leading stores have MAISH COMFORTS. Ask for them but *insist on seeing the trade-mark*, it is sewn to every genuine "Maish." If you don't find it, don't accept unhealthful, heavy comforts:

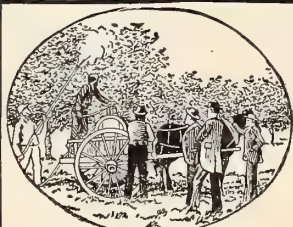
Don't risk contagion from unsanitary, unclean filling. If your dealer hasn't the Maish, order direct from us. Free piece cut from a MAISH COMFORT (samples of latest coverings), and "Comfort," our book of valuable facts about bedding sent on request.

The Chas. A. Maish Co., 1133 Bank St., Cincinnati.

TRADE



MARK



Six Governments

in America and Europe have adopted and use exclusively **THE SPRAMOTOR** in their experimental work. **Eighty-two Outfits** are in use by Ontario and Dominion Governments alone. **The Spramotor** has won **over one hundred** Gold Medals and First Awards in the past three years.

Wins a Government Spray Pump Contest.

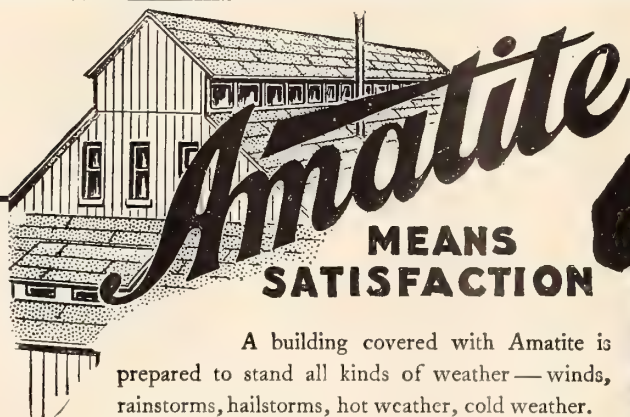
This is to Certify, that at the Contest of Spraying apparatus, held at Grimsby, under the auspices of the Board of Control of the Fruit Experimental Station of Ontario, in which there were eleven contestants, the **Spramotor**, made by the Spramotor Company, was awarded **first place**.

If any further endorsement were needed it will be found in the superiority of the **Spramotor** itself. It is an **easy, quick and thorough eradicator** of fruit and vine diseases and insect pests. Unequalled in whitewashing and painting buildings inside and outside—oil or water paints. We publish an 80-page book, **"A Gold Mine on Your Farm,"** which in addition to formulas, tables, best methods, etc., in spraying, tells about the **Spramotor**. We mail it free. Ask for a copy.

SPRAMOTOR CO., BUFFALO, N. Y. and LONDON, CAN.

H. J. H. M.

Judges.



A building covered with Amatite is prepared to stand all kinds of weather—winds, rainstorms, hailstorms, hot weather, cold weather.

In addition it is an excellent fire retardant. You have secured the *very* best Ready Roofing you can buy for the money when you invest in Amatite.

It doesn't shrink, crack, buckle, creep or rot. It's the up-to-date Ready Roofing for up-to-date farm and factory buildings, warehouses, etc.

Write for Testing Sample and Booklet to our nearest office.

BARRETT MANUFACTURING COMPANY
AMATITE DEPARTMENT

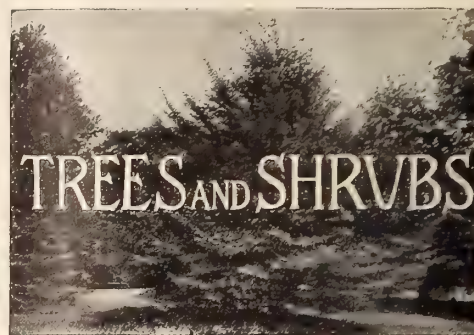
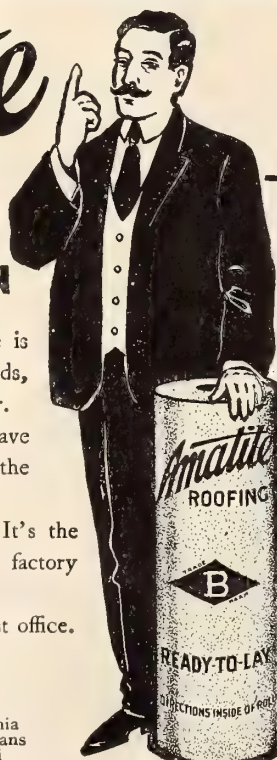
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Key to the Ornamental Beeches

(See also pages 58-60)

- A. Margin of leaves strongly toothed 1. (*Fagus ferruginea*) American beech
- AA. Margin of leaves obscurely toothed and wavy-lobed
- B. Color of leaves green
- C. Branches not weeping or twisted
- D. Length of leaves $2\frac{1}{2}$ to $3\frac{1}{2}$ inches
- E. Leaf not lobed or cut 2. (*Fagus sylvatica*) European beech
- EE. Leaf lobed like an oak 3. (*F. sylvatica*, var. *quercoides*) Oak-leaved beech
- EEE. Leaf cut almost to the midrib 4. (*F. sylvatica*, var. *heterophylla*) Fern-leaved beech
- EEEE. Leaf cut about half-way to midrib... 5. (*F. sylvatica*, var. *incisa*) Cut-leaved beech
- DD. Length of leaves, 4 to 5 inches..... 6. (*F. sylvatica*, var. *macrophylla*) Large-leaved beech
- DDD. Length of leaves less than $2\frac{1}{2}$ in.; leaves curled and clustered 7. (*F. sylvatica*, var. *crispata*) Crested beech
- CC. Branches weeping.... 8. (*F. sylvatica*, var. *pendula*) Weeping beech
- CCC. Branches twisted or contorted; dwarf tree, with small leaves.... 9. (*F. sylvatica*, var. *toruosa*) Twisted beech
- BB. Color of leaves yellow... 10. (*F. sylvatica*, var. *Zlatia*) Yellow-leaved beech
- BBB. Color of leaves purple, copper or rosy
- C. Branches weeping.... 11. (*F. sylvatica*, var. *purpurea pendula*) Weeping purple beech
- CC. Branches normal.
- D. Leaves copper colored 12. (*F. sylvatica*, var. *cuprea*) Copper beech
- DD. Leaves purple
- E. Margin purple
- F. Purple lasts through spring... 13. (*F. sylvatica*, var. *purpurea*) Purple beech
- FF. Purple lasts through summer 14. (*F. sylvatica*, var. *purpurea Riversi*) Rivers' purple beech
- EE. Margin rosy..... 15. (*F. sylvatica*, var. *purpurea roseo-marginata*) Rosy-margined beech



We Grow Peonies

Nothing Else

NOW is the time to plant. Why puzzle over, and try to make selections from lists containing hundreds of varieties. Many of the best are practically identical—so nearly alike that only an expert can distinguish the difference.

We Offer Only Twenty-Five Varieties

We believe them to be the choicest and best and the most desirable in cultivation. There is something new to be said on the subject of Peonies, and we say it in a little book we have. A postal card will bring it to you.

MOHICAN PEONY GARDENS
SINKING SPRINGS, PENNSYLVANIA

HOME GROWN LILIES

Horsford's Autumn Supplement of best hardy lilies and other bulbs for autumn planting (ready last of August) will offer a long Bargain List of surplus stock which should interest

those who have room to plant liberally. Nearly all of Horsford's plants can be set in fall as well as spring. It is better to set most hardy plants in the fall than late spring. Spring catalogue mailed to those who have not had it. These two lists offer about a thousand kinds for sun, shade, wet and dry soil. Ask for Supplement and catalogue before placing your orders.

FRED'K H. HORSFORD,
Charlotte,
Vermont



LAWNS AND THEIR CARE

Every lover of beautiful Lawns should send for this interesting and instructive little book called "Lawns—Their Making and Their Care." Valuable information compiled from Government and expert gardening sources, also interesting information about the new Seamless Tube "Bull Frog" Brand Lawn Hose "the kind that lasts."

THE TOLEDO RUBBER CO.
417 Summit St. Toledo, Ohio

The Peony Blue Book

NOW READY

Mailed on request.

G. H. PETERSON.
Rose and Peony Specialist
FAIRLAWN, N. J.

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OUR BULB CATALOGUE, beautifully illustrated with full and reliable cultural directions, and containing, as formerly, the largest and most varied assortment of high class Bulbs in America, is now ready and will be mailed free to all who send for it. A postal is sufficient.

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If you understand Modern Methods and FARM INTELLIGENTLY

Every reader of THE GARDEN MAGAZINE who is interested in farming or gardening, in the growing of fruit or flowers, is invited to send for a free copy of our 80-page catalogue and full information in regard to the Home Study Courses in Agriculture, Horticulture, Landscape Gardening and Floriculture which we offer under Prof. Brooks of the Massachusetts Agricultural College and Prof. Craig of the Cornell University.

The Home Correspondence School
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New Bulbs Rare Bulbs Choice Bulbs

The most complete list of the choicest varieties of Bulbs in the United States are offered in our beautifully illustrated

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Mailed free upon application.

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Our New Store
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High Grade Seeds, Bulbs, Plants,
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KIPLING'S

NEW BOOK

INCREDIBLE as it seems, considering the range of his work, Kipling has again touched high-water mark in an entirely new kind of story. By his magic the reader sees pass before him knights and robbers and pirates in some of the most exciting events in old English history—"though it shall have happened three thousand years." A more fascinating book, especially for young readers, would be hard to imagine.

PUCK OF POOK'S HILL

The publishing event of the year: *Ready October 4th*

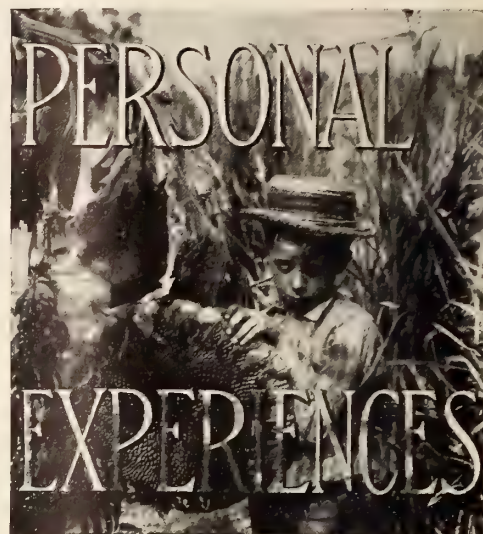
Illustrated in color by Arthur Rackham. \$1.50

BOOKS BY RUDYARD KIPLING



Puck of Pook's Hill.

Traffics and Discoveries. \$1.50
The Five Nations. Net, \$1.40. Postage, 14 cents
Just So Stories. Net, \$1.20. Postage, 12 cents
The Just So Song Book. Net, \$1.20. Postage, 12 cents
Kim. \$1.50.
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Life's Handicap: Being Stories of Mine Own People. \$1.50
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Soldier Stories. \$1.50
(With Wolcott Balestier.) The Naulahka. \$1.00
Departmental Ditties and Ballads and Barrack-Room Ballads. \$1.50
Soldiers Three. The Story of the Gadsbys, and In Black and White. \$1.50



A Delightful Winter Beverage

EVEN though you have to buy the grapes in small baskets, it is worth while making grape juice for winter use. Although we bought our grapes this way, often paying twenty-five cents for a small basket, the juice did not cost us more than ten cents a quart, which is one-fifth of what it costs in the stores.

Concord grapes are most generally used in making unfermented grape juice, but it is so dark, and the flavor is very strong. We therefore also tried Delaware, Niagara and Catawba, singly and in combinations.

Out of fifteen variations the following were most to our liking: Catawba alone; Catawba and Niagara; Catawba and Delaware; Catawba, Niagara, and Concord; Catawba, Niagara, Concord and Delaware; Delaware and Niagara; Delaware and Concord; Delaware, Concord and Niagara.

The Niagara juice alone was colorless and unattractive in appearance. The Delaware juice alone had a muddy look.

The recipe is as follows: Pick the grapes from the stems. To three quarts of picked grapes add one quart of water, and cook until the grapes are broken up. Strain through cheesecloth and then through flannel. Add sugar, and boil up; be careful not to get it too sweet, or it will be like syrup. One or two teacups of sugar to two gallons of juice will suffice, according to the sweetness desired. Bottle the juice hot, and seal securely. This will keep two years in a dark place.

Another way is to do up the juice without water, adding one scant teacup of sugar to eight pounds of grapes.

We save work by making a first grade and a second grade. For the first grade we use the juice that easily runs through the straining cloths, and return the material left to the stove, with another quart of water. This is strained through cheesecloth only, and used as "second grade." It does well enough if used soon, and saves much handling in the straining.

The cost varies according to the season, and the kind of grape used. One year we made twelve quarts from \$1.27 worth of grapes in four varieties. Another year three twenty-five cent baskets of Concord made eight quarts of juice in the two grades.

New York.

ALBERT R. MASON.

COUNTRY LIFE
IN AMERICA



THE WORLD'S WORK
FARMING



THE GARDEN
MAGAZINE

DOUBLEDAY, PAGE & CO. NEW YORK.

The Incomplete Amorist

The story of Eustace Vernon, master of the art of painting and of another art, and how he played with fire once too often.

By "E. NESBIT."

Illustrated by Underwood, \$1.50.

COUNTRY LIFE
IN AMERICA



THE WORLD'S WORK
FARMING



THE GARDEN
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FRANK NORRIS'S BOOKS

The Responsibilities of the Novelist. Net, \$1.25. Postage, 12 cents

A Deal in Wheat. \$1.50

The Pit. \$1.50

The Octopus. \$1.50

A Man's Woman. \$1.50

McTeague. \$1.50

Blix. \$1.25

Moran of the Lady Letty. \$1.00

Published by

DOUBLEDAY, PAGE & COMPANY

SEED OF Hardy Perennial or Old Fashioned Flowers

Now is the time to sow the seed of Hollyhocks Canterbury Bells and all other hardy perennials or old fashioned flowers for bloom next year. With all orders we will send cultural directions. We offer the following:



The "Canterbury Bell"

	Per Packet
<i>Aquilegia</i> (Columbine)	
<i>Erskine Park Hybrids</i> (all colors)	\$.25
<i>Anemone</i> (wind flower) mixed	.10
<i>Campanula</i> (Canterbury Bell) Medium	
White, lavender, blue, rose or mixed	.05
<i>Delphinium</i> (Hardy Larkspur)	
<i>Erskine Park Hybrids</i> (all colors)	.25
<i>Digitalis</i> (foxglove) <i>gloxiniæflora</i>	
White, lilac, purple, rose, yellow or mixed each	.10
<i>Calliopsis</i> (hardy coreopsis)— <i>Grandiflora</i>	.10
<i>Gaillardia</i> (blanket flower) <i>Grandiflora vera</i>	.05
(Hardy) <i>Aster</i> (Michaelmas daisy)	
Blue, white, violet or mixed, each	.10
<i>Helianthus</i> (hardy sunflower) mixed	.10
<i>Myosotis</i> (Forget-me-not) <i>palustris</i>	.10
<i>Papaver</i> (oriental poppy) mixed	.10
<i>Hollyhock</i> all colors mixed	.10
Or the above collection of (12) species, (separate) value \$1.40 for	1.00

Aurora Collection of Double Hollyhocks

Boddington's extra double scarlet, crimson, bright pink, blood red, lilac, canary yellow, golden yellow, salmon, snow white, rose, Allegheny single mixed. The collection of 11 varieties in separate packets, \$1.00 or each 10c per packet.

A list of 400 varieties of Hardy Perennials or Old Fashioned Flowers, to grow from seed, mailed free. Autumn Bulb Catalogue ready Sept. 1, 1906. Register your name with us for a copy.

ARTHUR T. BODDINGTON, Seedsman

342 West 14th Street - - New York City



A Planting of Evergreen Trees Purchased at Our Nurseries.

A WELL ORNAMENTED GROUND IS WHAT MAKES THE PLACE ATTRACTIVE

We have a large assortment of all kinds of Fruit and Ornamental Trees such as the MAPLES, ELMS, BIRCHES, BEECHES, LINDENS, POPLARS, TULIPS, CATALPAS, JAPAN MAPLES and MAGNOLIAS, APPLE, PEAR, PEACH, PLUM, CHERRIES, etc. Can furnish Dwarf Box, also the Box Trees, TREE ROSES, as well as the ROSE BUSHES, HARDY PHLOX, and PÆONIES, AZALEAS, JAPAN and GERMAN IRIS, ORNAMENTAL GRASSES and a full line of PERENNIALS. Also a large stock of SPRUCE, PINES, ARBOR VITÆS, and all the different varieties of Dwarf Retinosporas, which are the most ornamental of all Evergreens. All varieties of SHRUBBERY, and CALIFORNIA PRIVET for HEDGING. No matter what you want, write to us and see if we cannot supply you.

Our Landscape Architect can lay out your grounds to your perfect satisfaction. Let us hear from you. Will send Catalogue upon application. Address

STEPHEN HOYT'S SONS CO.

Tel.: 148-2 So. Norwalk, Ct.

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AUTUMN PLANTING

Now is the time to plan to
make your grounds beautiful



SHADE TREES

We have splendid blocks of handsome straight stem Norway Maples, Oriental Planes, Pin Oaks and other trees for planting in every position.

VINES AND CREEPERS

For every place and position are growing in our Nursery; thousands are in pots that can be planted at any time and season.

OLD FASHIONED FLOWERS

We have many acres of these popular favorites. Our Landscape department makes a specialty of old fashioned gardens.

RHODODENDRON MAXIMA

Can be planted now with perfect safety. Inspect our stock and get an idea of the quantity and quality we have for immediate use.

EVERGREENS AND CONIFERS

Our collection is now known all over the country, the handsome specimens having been admired by visitors from every state in the Union. We ship with perfect safety any distance.

BLUE SPRUCE (True)

Several thousand specimens including several hundred Weeping specimens. Such a collection cannot be seen in any other Nursery in the world. Call and see them.

SHRUBS FOR CONTINUOUS BLOOM

We have many acres planted with a magnificent collection of these garden favorites; many kinds among them being new and rare.

BULBS AND ROOTS

For every place and purpose. In our illustrated Autumn catalogue will be found a large variety which will give a constant succession of bloom from early Spring to late Fall. Our Nursery is a paradise of flowers at this time. Nobody can spend a more enjoyable day than when visiting our Nurseries. All are described in our Autumn catalogue, which we will be glad to send to serious inquirers.

BEECHES

We have a splendid lot of the true purple and Copper varieties in handsome trees. We will be pleased to show them to visitors.

PAEONIAS

Of these we have several acres planted with many thousands of all the finest and most popular varieties. Same are listed in our new Autumn catalogue.

OUR LANDSCAPE DEPARTMENT

will be glad to assist you in the proper selections of every kind of plants for special locations or in other landscape problems that you may have.

BOBBINK & ATKINS,

Nurserymen, Florists and Landscape Gardeners. RUTHERFORD, N. J.

THE ELM CITY NURSERY COMPANY, NEW HAVEN, CONNECTICUT

SEPTEMBER PLANTING

IRIS TRUE TO DESCRIPTION

GERMAN, twelve distinct sorts.
JAPANESE, twenty-four distinct sorts.
PUMULA, SIBERICA, ETC., ETC.

Plant Now and Enjoy a Fine Display the
Following Spring

PÆONIES

Our collection includes practically all the new and the best of the old sorts. The ones we catalog are true to description and are offered in four sizes. The two larger sizes will produce a display of flowers the following season if planted in September.

EVERGREENS

The leading sorts are grown in large quantities and our collection includes also many which are very rare and fine specimens which take up with a ball of earth.

STRAWBERRY PLANTS POT GROWN

If set out soon will produce a crop of luscious fruit the following season. The varieties we offer have proven themselves to be both delicious in quality and productive.



HOLLAND BULBS OCTOBER AND NOVEMBER PLANTING

Only the best grade offered. Hyacinths, Tulips, Narcissus, Jonquils, Crocus, Iris, Lilies, Ranunculus, Scilla, Snowdrops, Anemones, Crown Imperials, etc., etc.

Special Autumn List and General Catalog

Both will interest you and are yours for the asking. An extensive stock here to select from and every facility for the prompt handling of all orders are features which will make your dealings with us a source of mutual satisfaction.

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Visitors always welcome at the Nursery



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DUKE OF WELLINGTON—Soft creamy white; large.	\$.40
FESTIVA MAXIMA—Pure white; center flushed carmine; always popular	1.00
FLORAL TREASURE—Fine bright pink; free bloomer; fragrant.	.50
GLOBOSA GRANDIFLORA—Large white; fragrant	.25
GOLDEN HARVEST—The nearest approach to yellow; very sweet	.50
GRANDIFLORA RUBRA—Extra large. Perfect balls of bright red	.40
HUMI—Bright rosy pink; very showy. Late.	.40
LA TULIPE—Large white, laced crimson. Late.	.50
L'ESPERANCE—Vivid rose; early and free; fragrant	.40
PURPUREA SUPERBA—Large outer petals; center small and compact. Very large lilac-rose flowers. Tall.	.25
QUEEN VICTORIA—Creamy white; center at times blotched red; extra.	.40

One Each of Above Collection, \$4.50

... PHLOX ...

The following varieties are selected from our Large Collection for their many distinctive qualifications and embrace the colors from white to bright red and purple. In addition have many other meritorious sorts. If interested, write. Special quotations in quantity.

Amphitryon—Lilac, suffused with white	2 1/2 feet
Astier Rehu—Bright deep purple, half of each petal lighter	2 1/2 feet
Attraction—Snow white, with rosy-crimson eye	2 1/2 feet
Baron Von Burkhart—Bright rose flowers in immense heads	2 1/2 feet
Coquelicot—Fine pure scarlet, with deep crimson eye	2 1/2 feet
Crepuscule—Lilac, shaded lighter toward margin; large crimson center	2 1/2 feet
Iris—Deep purple-magenta, dark crimson center	1 1/2 feet
Jas. Bennett—Light pink, tinted salmon; large crimson center	1 1/2 feet
Jas. Galloway—Bright crimson, maroon center	1 1/2 feet
Peachblow—Delicate pink with white markings	1 1/2 feet
Pink Beauty—Light rose, enormous spike	2 1/2 feet
R. P. Struthers—Crimson pink, tinted orange; dark center	2 1/2 feet
The Queen—Pure white; large flower and spike	2 1/2 feet

Large Field Clumps, 20 cents each; \$2.00 per dozen

Above Collection, 13 varieties, \$2.00

Send for Fall Catalogue of Perennials and Bulbs

Nathan Smith & Son, 92 W. Maumee St., ADRIAN, Mich.

Peonies and Phlox for September Planting

The following belong to the old-fashioned *Officialis* Type, especially valuable on account of early flowering:
ALBA PLENA—Opens light pink, finishes pure white \$.30
ROSEA PLENA—Deep purplish rose. Large flowers .30
ROSEA SUPERBA—Rose pink, shaded salmon. Grand .75
RUBRA—The well-known red .30

One Each of This Collection, \$1.50

SPECIAL: The Two Collections, 15 Superb Varieties, \$5.50

The above quotations are for strong flowering clumps and should not be compared with the small roots usually offered



A Quick Way to Cook Spinach

THERE was an article in the July, 1905, GARDEN MAGAZINE, page 270, containing a recipe for cooking spinach. I think I have a better one.

Put spinach in cold water as soon as picked, wash thoroughly, and let it stand till needed in cold water. Put one-half teaspoonful of soda in a kettle of boiling water, add salt, put spinach in the boiling water. This will cool the water, but it will boil again in a minute or two. Boil three minutes. Empty spinach into colander, and press out the water. Season just before serving with a good lump of butter. Cooked this way, it will not need vinegar. New Zealand spinach has to be cooked from five to ten minutes.

Massachusetts. JOSEPHINE CLARKE.

Which are the Best Dark Roses?

WILL some of the readers of the GARDEN MAGAZINE having experience in similar climate help me? I want the names of such hybrid perpetual roses as are very dark red, or rich, velvety crimson in color. I have Camille de Rohan, which blooms but once, and is not as hardy as I like, in this region, which is about fifty miles south of Lake Erie, in Northeastern Ohio.

Ohio.

F. A. G.

Japanese Bamboo Stakes

For Supporting Plants and Shrubs.

Durable year to year. Indispensable for tying Lilies, Roses, Chrysanthemums, Tomato Plants, Dahlias, etc.

6 ft. Stakes, 100, \$1; 1,000, \$5

Extra Heavy Stakes for young trees, shrubs, etc., diameter 1 1/2 to 2 inches, 6 feet long,

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7 ft. long; per dozen, \$1.25; 100, \$6

These heavy stakes are also used for the building of Japanese gardens, bridges, kiosks, etc. Address

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IRISES

HERBACEOUS PLANTS AND SHRUBS

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EVERGREENS

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In great quantity and best kinds. Phlox a specialty.

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Strong clumps for immediate effect. Send for catalogue.

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BEVERLY, MASS.

Write me about your seed troubles

—your triumphs, too—whether you bought your supplies from me or not, whether you intend to or not.

I want to get into close personal touch with you regarding seeds, bulbs or anything else pertaining to your garden.

My large *Floracraft Trial Grounds and Seed Gardens*, with a complete range of greenhouses constantly under my control and personal supervision, and my experience in raising

Stokes' Standard Seeds

give me knowledge that I make valuable to my customers through my catalogues and personal correspondence.

I am an optimist in all that pertains to garden or greenhouse. I feel that if we get together on the subject, you will soon be my friend and eventually my customer.

Shall I send you my catalogues and circulars as they are issued from time to time? Write me to-day.

STOKES' SEED STORE, 219 Market St. Philadelphia

Walter P. Stokes of the late firm of Johnson & Stokes.



"The Seasons in a Flower Garden." By Louise Shelton. Charles Scribner's Sons, New York, 1906; pp. 1-7. Price, \$1.00 net.

This is a book which every amateur gardener should own and from which he can glean much valuable information. It is divided into three parts. Part I has suggestions for gardens varying from 25x30 ft. to 60x70 ft., and tells what, when and how to plant. There is also a short chapter on soils. Part II—The Garden Record. Beginning with September as the proper month to start garden operations, the work which should be done each month is taken up in detail. There are also valuable tables of the plants in bloom during the different months which show how long the plants last in bloom, height, color, etc. Part III is devoted to general information, such as, how to make coldframes and hotbeds, flowers for special places and the preferred habitat of flowers for the wild garden.

"How Ferns Grow." By Margaret Slosson. Henry Holt & Co., New York, 1906; pp. 156, plates 45.

A very comprehensive study of the leaf development of eighteen of our native ferns illustrated by lifesize nature prints. The author shows how the fronds of a given species vary during the development of the plant. A book for the nature student.



Screen to gardener's cottage. Moved 1905.

BIG TREES MOVED

FOR architectural gardens we offer hedges prepared for moving, that are equal in size and quality to the one illustrated on page 19. *Hicks Patent Treemovers* make possible the moving of big trees for immediate shelter—shade—screen. Visit Westbury Nurseries to select evergreens for August and September planting, or write the effect desired. We offer ready for moving, Norway, sugar and red maples, pin oaks up to 50 feet high; pines spruces, hemlocks, arborvitae and cedars. Trees that thrive on Long Island and blend with the landscape. Twelve treemovers for various types of soil and tree.



Part of 175 evergreens, 15 to 37 feet high, moved within 9 months to bare hill site for Mr. Walter G. Oakman, Roslyn, L. I.

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YOU have wanted evergreens in quantity but there have been difficulties. They have not been available in large quantities at low rates. We have them by the 100,000 from seed that fits the north-eastern United States. They are trained and packed for successful transplanting. We have the beautiful cheerful kinds. You want privacy. Evergreens will make a screen the year round. With evergreens a small area gives as much privacy as a large one. Evergreen hedges and shelter belts make country life comfortable in winter.

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			Per 10	Per 100			Per 10	Per 100
Pitch Pine	8-12 in.		\$.15	\$ 1.00	Mugho Pine tr. 6-12		\$ 2.50	\$
" " tr.	8-12 in.		.60	5.00	Densiflora Pine, Japanese, tr. 6-12 in.		1.50	12.00
" " tr.	1-1½ ft.		1.00	8.00	" " tr. 1-1½ ft.		1.80	15.00
" " tr.	1½-2 ft.		1.50	12.00	Norway Spruce tr. 8-12 in.		1.00	9.00
Scotch Pine tr.	6-12 in.		.50	4.00	" " tr. 1-1½ ft.		1.40	12.00
" " tr.	1-1½ ft.		1.50	12.00	" " tr. 1½-2 ft.		2.25	20.00
White Pine	2-4 in.		.30	2.00	White Spruce, 4-8 in.		.80	7.00
" " tr.	3-6 in.		.60	5.00	Engelman's Spruce, blue. From			
" " tr.	6-12 in.		1.00	8.00	Colorado, and better than Colorado Blue			
" " tr.	1-1½ ft.		1.75	15.00	Spruce, 2-4 in.		1.00	8.00
" " tr.	1½-2 ft.		2.75	25.00	Engelman's Spruce tr. 4-8 in.		2.00	15.00
" " tr.	2-3 ft.		3.75	35.00	Colorado Fir, 3-6 in.		1.00	5.00
Austrian Pine,	4-6 in.		.50	4.00				
" " tr. 1-1½ ft.			2.00	15.00				

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Send for price list of evergreens and catalogue giving the scientific reasons of their successful growth.

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Nurserymen and Scientific Treemovers

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TO ENRICH WORN OUT BEDS.

The best natural fertilizer, free from straw, and perfectly clean. The ideal material for making manure water, it is so easily soluble. Invaluable as a top dressing for exhausted beds and benches. Mix some with your compost heap for a rich, mellow potting soil next spring.

Cairnsmuir Farm. NEW CITY, Rockland County, N.Y.



Bulbs for Fall Planting

Hyacinths
Lilies Crocus
Daffodils

Tulips Iris Snowdrops

Vick Quality Bulbs and Plants give satisfaction in the house or garden. Whether amateur, florist or gardener, you really need a copy of **Vick's Garden & Floral Guide, for Autumn** Handsome illustrations. Valuable information. Interesting descriptions. It's free; ask for it.

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Illustrated Catalogue free
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FOR PANSIES IN MARCH!

SOW pansy seeds in the coldframe any time between August 15th and 30th, and you will be rewarded by having a profusion of flowers in cold, bleak March and good strong plants for bedding out in earliest Spring. Pansies may be grown for early flowering next year without a coldframe if seeds are sown now and the plants given winter protection of leaves or litter. They will then flower in May, weeks earlier than if sowed next Spring.

Our Royal Pansy Collection

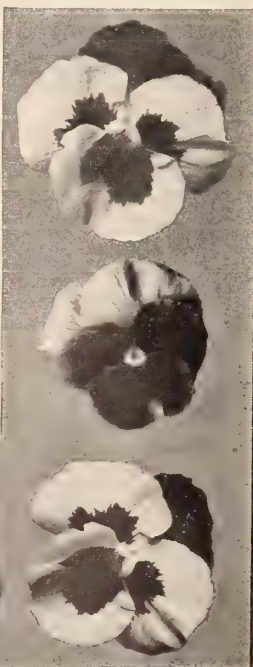
will give you the most gorgeous velvety flowers in the following colors:

Pure White, Golden Yellow
Lustrous black
Shining Bronze
Azure Blue Violet
Deep Purple
Yellow with black eye
White with violet eye
Purple with white edge
Copper color Striped
Red Shades
Brilliant colors with dark blotch on each petal (Ostier)

Packet of 100 seeds, each 10 cents. The collection of 14 packets for \$1.00.

Send for our 28th Annual Fall Catalogue, giving a full description of all Fall bulbs, plants and seeds.

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Everything for the Farm, Garden and Greenhouse.
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In a Piedmont Cedar Chest you have the safest, most economical and convenient way of storing furs, blankets and woollen garments. It is **absolutely moth and dust proof**. Makes a beautiful marriage chest for presentation to brides. Strong, heavy and lasts a lifetime.

The delicate odor of Real Southern Red Cedar is imparted to your garments, not the smell of moth-balls or like preparations that takes days of airing to get out.

Made in several sizes, fitted with handsome trimmings, and built throughout of genuine Southern Red Cedar.

An Appropriate Christmas, Wedding or Birthday Gift.

You run no risk; if you are not perfectly satisfied with the chest, return it in five days at our expense and get your money back.

They are shipped direct from factory to your home, freight prepaid.

Write for booklet with full information and special factory prices.

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Information about the selection or care of dogs, poultry and live stock will be gladly given.
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We breed our prize Winners and can sell you birds that will enable you to do the same.

At Madison Square Garden we won first and Club special on S. C. Buff Orpington pen—14 pens competing. Also third pullet—39 pullets in the class.

At Albany, N. Y., we made a clean sweep. Our Buff Orpingtons won every regular prize offered, except one third—64 Buffs competing. Also eight specials, including silver cup for best display—all varieties competing. On C. I. Games we won two 1st, four 2d and three 3d at the same show. Our Black Minorcas are bred for egg production and shown for exhibition only. Stock and eggs for sale at right prices. Satisfaction guaranteed.

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Intelligent Poultry Raising

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Don't make them too fat by feeding corn. Keep the lice away. I have Cypher's Incubators and Foods and Medicines, and all that is best in Poultry Supplies.

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Orpington Fowls
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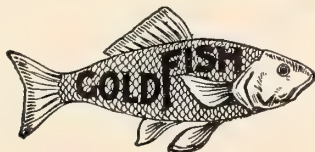
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(also of England and S. Africa).
If you want the best Orpingtons, any of the ten varieties, it is natural that you must send to us, their originators, for them. Winners of over 8,500 cups and prizes. Largest winners wherever we show.

EGGS \$10 per setting; from exceptionally fine stock, \$5 per setting. All guaranteed.
ORPINGTON POULTRY JOURNAL, 5 cts.; yearly, 60 cts.
We have thousands of Orpingtons mated up.
Inspection of poultry farms cordially invited. Trains met. Advice free.

Scottish Terriers

Offered as companions. Not given to fighting or roaming—Best for children's pets.

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STARK FRUIT BOOK
shows in NATURAL COLORS and accurately describes 216 varieties of fruit. Send for our liberal terms of distribution to planters.—Stark Bro's, Louisiana, Mo.

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Strong, healthy plants from selected stock of choicest fruiting varieties sure to give satisfaction and PRODUCE A FULL CROP IN 1907.

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If you have the best mated HOMER PIGEONS

Send to-day for our free book, "How to Make Money with Squabs."

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Dr. Payne's Sanitary Poultry House
Has given universal satisfaction. Plans complete for building House, Self cleaning Roosts, Sanitary Nests for \$1.00.
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The Cattarian will be sent for three months to any person adding five addresses of cat lovers to our present catalogue of more than 10,000.

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HANDSOME
VIGOROUS
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Sable and white and tri-color pups, from eight weeks to eight months old. All are eligible for registration, being very highly pedigreed and combining the blood of the present day winning strains with that of practically all of the famous collies of the past. Price from \$10.00 up, according to age and quality. Correspondence invited, but please state wants specifically.

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OUR NEW BOOK
JUST PUBLISHED

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Choice Evergreens SPECIMEN TREES
For Ornamental Planting.
Also DECIDUOUS TREES and SHRUBS

Write for large illustrated catalog.

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DUNDEE, ILLINOIS



[EDITOR'S NOTE.—Whenever an inquiry demands prompt attention we are glad to give advice by mail. This course is necessary because the magazine is made up several weeks in advance of the time of publication, and an answer given only in this column would very often be too late to be of any service to the subscriber. Unfortunately some correspondents have sent in letters without signature, or with such incomplete addresses that we have been unable to communicate with the writers. Will subscribers who have not received prompt attention please remember that it has not been through lack of courtesy or desire to serve on our part, but through utter inability to get into communication? Subscribers should be careful to give their full name and address, and enclose stamps for reply.]

THE CUCUMBER TREE—A CORRECTION

The flowers of *Magnolia acuminata* are 6 inches across, instead of "1 or 2" as stated on page 267 of the June GARDEN MAGAZINE.

BRINE FOR PICKLES

H. F. C., IOWA—Pickles are placed in brine strong enough to float an egg until needed. They are then put in fresh water and soaked for two or three days and then put into the vinegar.

A TON OF MANURE

E. J., Mass.—The density of stable manure varies enormously, as does its moisture content, so any statement of its weight in relation to bulk must be merely general. A full two-horse load is generally regarded as one ton. Twenty tons to the acre I should consider a very moderate dressing. I have used as high as 100 tons to the acre, for strawberries, and consider that a good dressing.—B.

LIME FOR SOUR SOIL

J. M. B., Mass.—As to liming your soil, we cannot give you any advice, as you neglect to say where you are located. If you think your soil is sour, try an application of 1000 pounds to the acre, of air slacked lime, which should be put on after ploughing, and thoroughly harrowed in. Do not attempt to plant seeds in this limed soil for three weeks. It will hurt the seeds if they are sown before.

COLOR VARIATION IN DAHLIA

F. A. W., Missouri—The phenomenon you describe is characteristic of some varieties of dahlia, is occasional in others, and is unknown in the third group. The variety Harry Smith, for instance is ordinarily a deep maroon, tipped white, but sometimes produces flowers entirely maroon. Many of the parti-colored varieties will occasionally produce flowers with a whole section solid with one of the colors.

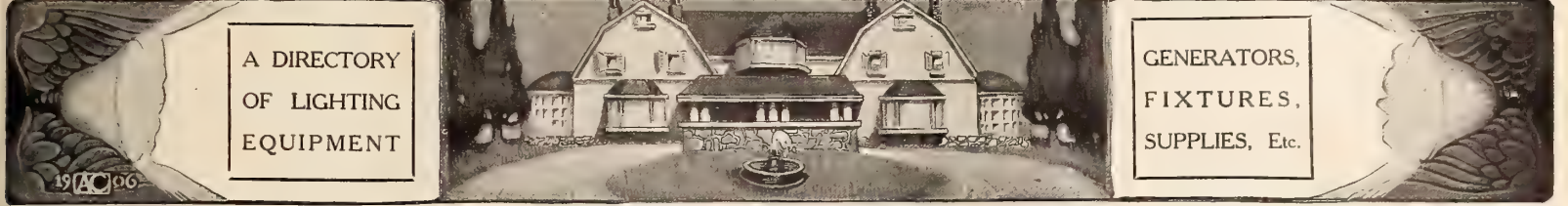
BAGGING GRAPES

A. H., New York—I have never observed that the sacking of grapes made the bunches ripen unevenly, or to injure the flavor of the berries. On the contrary, the season of ripening is usually hastened, and the flavor slightly improved. I am inclined to think this trouble is due to the soil or the season, and not to the sacking. Were there any unsacked bunches of Delaware for comparison? Possibly the soil needs potash, in which case wood ashes will supply the deficiency. S. W. F.

WHAT ARE SPORTS AND VARIETIES?

M. B., PENN.—Evidently you are confusing the ideas of sport and variety. A variety may originate through a sport. A sport may be described as a very marked variation, appearing suddenly. A variety is any characteristic variation from a species which can be reproduced. Thus, propagation of a sport will give origin to a variety. I cannot tell whether your poppy plant will maintain its character. Probably it will. There are many color variations in existence already. If so, you will have a variety which originated as a sport.—B.

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OF LIGHTING
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One "Beto" Burner will furnish sufficient light to illuminate any room in an ordinary house.

One "Beto" Burner will give as much light as three ordinary Burners, and consumes but one-half the amount of gas.

Write us to-day, mention kind of generator used, enclose 10 cents to cover postage and packing, and we will send you A SAMPLE BURNER.

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A Brilliant Lamp for the Country Grounds

At the entrance and roadways a clear, constant
light is necessary.

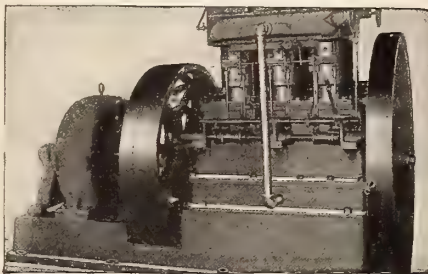
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is built for this service, and embodies every im-
provement for country lighting.
It is economical, can be lighted and regulated
from the outside, has no chimney, and is guaran-
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PRICE, \$6.00

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is the title of a brochure which we wish to put in your hands. It is accompanied with a series of illustrations of different Garden Accessories made in marble and stone, which we think very good. If you are interested and will ask us, we shall be glad to send you one

Fountains	Sun Dials	Benches	Pergolas
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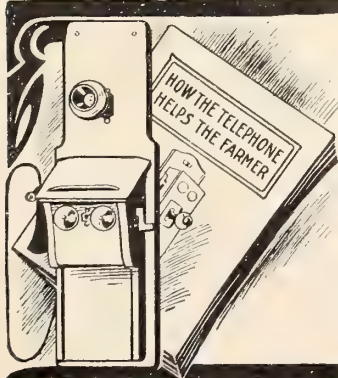
Is as far behind the times as the warming pan. The painter who mixes and tints lead by hand charges for the time wasted in performing an ill-done task. His materials are antiquated and his methods mediæval. High-grade ready mixed paint is the logical up-to-date material and being based largely on **Oxide of Zinc**, will cost less, look better and last longer than rule-of-thumb shop-mixed paints.

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are the only ones to be considered for farmers' lines. The book is crowded with practical information on the building of farmers' lines and the organization of farmers' companies. It goes to you from the greatest independent telephone plant in the world—the one that has been in the fore-front of the battle for independent telephone lines. Don't put it off—write today for booklet "How the Telephone Helps the Farmer."

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WOOD ASHES AS A LAWN FERTILIZER

A. R., MASS.—The wood ashes will make an excellent fertilizer for your lawn or garden. Apply at the rate of one to two tons an acre. A sugar barrel will hold about 200 pounds which will be enough wood ashes for a plot forty or forty-five feet square.

MAKING TREES FROM BEDDING PLANTS

G. G. S., PENN.—To grow lantana in tree form, follow the directions given in the April GARDEN MAGAZINE for growing the heliotrope to tree form. Any variety in the trade may be grown this way, with perhaps the exception of delicatissima, which although a very profuse bloomer, has very weak stems.

MAKING NEW RUBBER PLANTS

W. P. F., PENN.—If your rubber plant is growing in a living room, the best way for you to get new plants is by scoring the bark of the limb where you want the roots to grow, and covering the injury with sphagnum moss, which must always be kept damp. Roots will soon permeate the moss, when the limb should be cut off and potted.

GROWING CAPE BULBS

C. D. J., MASS.—Separate your freesia and oxalis bulbs from the soil and sort them. The very small ones—those of about the size of corn kernels—will not bloom this winter, but should be grown on in separate pots, or boxes. Sow them $\frac{1}{2}$ in. apart. The large blooming bulbs should be planted 1 to 1 $\frac{1}{4}$ in. apart. If you fail to sort out the bulbs, or plant the larger bulbs too closely, you will get only a few flowers.

MAKING HARDWOOD ROSE CUTTINGS

T. M. P., MAINE.—As you do not have a greenhouse, the best way to increase the number of rose plants is by hardwood cuttings taken this fall, before the hard frosts come. When the wood is thoroughly ripened, take cuttings six inches long, tie them in bundles, and store in a cool place over winter, in damp sand. Here they will callus before spring. In April, plant these cuttings six inches apart, in V-shaped trenches.

LIQUID PLANT FOOD

W. N., ILL.—Liquid manure is usually made by putting fresh manure into water, a bushel of cow manure, or an ordinary bucketful of horse droppings, or a five pound package of sheep manure to a 45-gallon barrel will be found plenty strong enough. Where manure is allowed to stand in a hollow place with poor drainage, manure water collects. This is not good for plants in pots or boxes, or in greenhouses' benches; it will sour the soil.

CHOICE SEPTEMBER FLOWERS

W. J. B., MASS.—Buy bulbs of *Amaryllis Belladonna* in September. Pot in a heavy loam, to which has been added some bone dust and well-decayed cow manure. Do not allow the bulbs to flower. Grow in a cool, airy place and put outdoors during the summer. When the bulbs begin to ripen—the leaves turn yellow—place the pots on their sides in a sunny situation, and let them bake until the flower spikes begin to show.

MAKE GOOD POTTING SOIL

J. A. H., CONN.—A good compost is easily made if you can get sods about three inches thick from the surface of an old pasture. Pile these in layers, grass side down, with alternating layers of manure, using one part of the latter to three of the former. Cow manure is better than that from the horse, unless the latter is well rotted. It is better to take the sod from the field in October or November, when the grass has been killed. If the pile is worked over two or three times during the winter, it will be in good condition for use in the spring. A compost heap may also be made in the spring; but it must be done early in April before the grass starts.

CARE OF MANURE

A. R., NEW JERSEY.—To give best results in the garden stable manure should be piled under cover, and turned over frequently enough to keep it from "burning." Horse manure will need frequent turnings, but cow manure needs little or no attention. When manure "burns," the heat from fermentation becomes so great that the ammonia compounds in the manure are driven off, thus losing the most valuable fertilizing quality it contains. You will know when the manure is well rotted, by watching the straw, or litter in it. When this has lost its identity, the manure may be called rotten; but manure is often used long before it reaches this stage. Manure is better for being kept under cover, as its soluble properties are not then leached by the weather.

A SUCCESSFUL CROP GROWN IN THE CELLAR FROM PURE CULTURE SPAWN

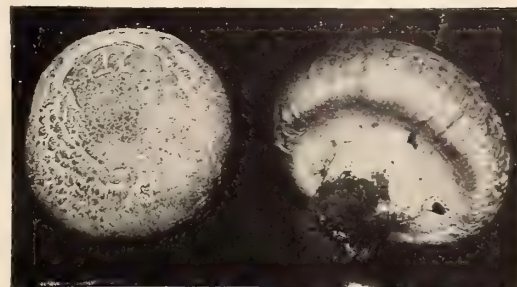
¶ Think of making beds in your cellar on a table or on shelves, or on the floor of an unused outhouse! The only requirements are comparative darkness, an even, low temperature, and pure culture spawn. The introduction of "pure culture" spawn two or three years ago, which created such interest and comment on account of its ease of culture, certain vitality and quality of yield, simplifies wonderfully the raising of mushrooms.

❶ Mushroom growing not only supplies your table with one of the most toothsome of dishes during the winter months, but it gives you the pleasure of gardening during the winter without a greenhouse or even a coldframe! And the expense of spawn is trivial.

❶ Let us send you our booklet on mushroom culture which gives you the story in a nutshell, with illustrations, and tells about our pure culture spawn, with prices. It's yours for the asking.

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CHICAGO BRANCH: 604 LA SALLE STREET



A GOOD MUSHROOM. NOTE THE BROAD CAP AND SOLIDITY

It's Our Business To Talk Greenhouses

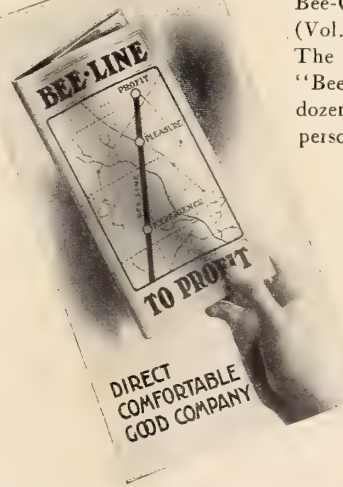


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Get the New, Free BEE BOOK

Mr. A. I. Root in 1835, in 1873 and in 1905. Also productions of *Gleanings in Bee-Culture* when it was first started in 1873 (Vol. 1, No. 4) and a recent 1906 number. The book is full of pictures. Its title is "Bee Line to Profit." The booklet gives dozens of reasons why bee-keepers or other persons who love bees and honey, should subscribe to



Gleanings in Bee-Culture

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THE A. I. ROOT COMPANY

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PEONIES

C We can furnish roots in four sizes, 1, 2, 3 and 4 years old. Size is indicated by price, the lesser price meaning the 1-year-old roots, and so on. The 1 and 2-year-old sizes are sent prepaid by mail or express. The two larger sizes by express only, at buyer's expense.

RED SORTS

- Ambroise Verschaffelt.** Deep purple-crimson; large, cup-shaped bloom; *late*. Each, 25c.; 2nd size, 50c.
- Berlioz.** Striking large, bright currant red, *very late*. Each 50c.; 2nd size, 75c.
- Decaisne.** Large, full flower, bright, violet red. Each, 35c.; doz., \$3.50; 2nd size, 60c.
- Etendard du Grand Homme.** Large flower, bright reddish crimson shaded violet, extra fine. Each, 50c.; doz., \$5.00.
- Felix Crousse.** Large full, ball-shaped bloom; brilliant red with ruby flamed center; exceptionally bright, effective and desirable. Each, \$1.00; doz., \$10.00.
- Louis Van Houtte.** Color, deep velvety crimson; flowers large, very double, of good form and of great durability; they have kept in perfect condition on the plants for over a week. This is a very free-blooming and hardy variety. Each, 25c., 50c., \$1.00, \$2.00, according to size.
- Meissonier.** Midseason. Deepest black; flowers very double and show no stamens. Each, 25c.; 2nd size, 50c.
- Madam Buquet.** Very pretty, perfectly formed bloom; color darkest velvety amaranth, almost black. Magnificent variety. Each, 65c.; 2nd size, \$1.00.
- Officinalis Rubra Fl. Pl.** The well-known crimson variety of our grandmother's days. The earliest of all Peonies. Each, 20c.; 2nd size, 40c.
- Richardson's Rubra Superba.** Very late; dark crimson; very fine. The best late black without any stamens. Each, 50c.; 2nd size, 75c.

WHITE SORTS

- Boadicea.** Creamy white cupped center, *very fine*. Each, 25c.; 2nd size, 50c.
- Couronne d'Or.** Pure white, with reflections of yellow in the center. Petals slightly imbricated; fragrant. One of the finest of all. Each, 75c.; 2nd size, \$1.25.
- Festiva.** Flowers pure white, large, double cup-shaped. Very similar to Festiva Maxima. Each, 75c.; 2nd size, \$1.25.
- Festiva Maxima.** One of the largest and choicest of all the white Peonies. Milk white, with a few carmine spots in the center; flowers enormous size, often measuring 7 to 8 inches across; very double and delightfully sweet. The stems are long and strong. Early bloomer. Each, 75c., \$1.25, \$2.00 and \$3.00, according to size.
- Madam de Verneville.** Late midseason. On strong stem; very well formed, compact, full imbricated blooms, literally packed with overlapping petals; very broad guards sulphur-white, center delicate rose-white with an accidental touch of carmine. Grand for all purposes. One of the finest and most chaste. Each, 75c.; 2nd size, \$1.25.
- Madam Crousse.** Very large, full, well-made flower; color snow-white, center petals edged with bright carmine. Extra fine for all purposes. One of the finest. Each, 75c.; 2nd size, \$1.25.
- Marie Lemoine.** Delicate ivory white, very solid, mas-

sive bloom, of extra size. Very late. Each, \$1.00, \$2.00 and \$3.00, according to size.

- Queen Victoria.** An A No. 1 sort. Flowers very large, full and compact, with fine broad guard petals. Opens flesh white, center petals tipped with red blotches. One of the best cut flower sorts. Follows right after Festiva Maxima in time of blooming. Each, 25c, 50c., \$1.00, \$2.00, according to size.

LIGHT PINK SORTS

- Delicatissima.** This is one of the prettiest, most delicate shell-pink varieties; flowers large, well-formed and freely produced. Each, 50c., 75c., \$1.50, \$2.50, according to size.
- Jeanne d'Arc.** A very striking variety, producing a great many large flowers. The guard petals are bluish-pink, with a distinct blush white center. The total color effect of the flower is a creamy pink. Flowers fragrant; plants very free and vigorous. Each, 75c.; 2nd size, \$1.25.
- Mad. Chaumy.** Flowers very large, double and full. Color, satiny pink. Each, 25c.; 2nd size, 50c.
- Mme. de Vetry.** Large flowers, guard petals clear flesh, center sulphur-white with carmine stripes. *Late*. Each, 75c.; 2nd size, \$1.00.
- Mad. Milleret.** Light pink, center cream, splashed with carmine. Each, 25c.; 2nd size, 50c.
- Mons. Jules Elie.** Flesh pink, very large. *Extra*. Each, 75c.; 2nd size, \$1.00.
- Mons. Rousselon.** Guard petals pink, center soft pink. Each 25c.; 2nd size, 50c.
- Triomphe de l'Exposition de Lille.** Soft flesh pink with white reflex; very fresh and lively; rose shape. Each, 60c.; 2nd size, \$1.00.



BRIGHT ROSE SORTS

- Achilles.** Fine large bloom, healthy grower, profuse bloomer. Opens light flesh colored pink, finishing blush-white, with an occasional creamy spot. An excellent variety for all purposes. Midseason. Each, 25c.; 2nd size, 50c.
- Duchess d'Orleans.** Large bloom, carmine pink, center salmon. *Extra*. Each, 25c.; 2nd size, 50c.
- Edulis Superba.** Fine clear bright pink, *very early*. *Extra*. Each, 25c., 50c., \$1.00, \$2.00, according to size.
- Eugene Verdier.** Large cup-shaped bloom, flesh pink, shaded yellow and salmon, erect habit, very fine and pleasing color. *Extra fine*. Each, \$1.00.
- Jules Calot.** Large flower, bright carmine, pink, very double. Fine cut flower. Each, 75c., 2nd size, \$1.25.
- Lady Lenora Bramwell.** Beautiful shell pink. Each, 50c., 75c., \$1.50, \$2.50, according to size.
- Madam de Galhau.** Large, very full convex bloom with closely set petals; color soft, glossy lilaceous pink, petals bordered silvery pink. Each, \$1.00; 2nd size, \$1.50.
- Madam Lebon.** Late. Very large, double flowers in clusters; color brilliant cerise red; large petals liguated with salmon, silvery reflex. *Fine*. Each, 35c.; 2nd size, 60c.
- Madam Ducel.** Midseason. Perfectly formed globular bloom; dwarf, vigorous habit; very free; color bright silvery pink, tinted and marked with salmon and silvery reflex. Magnificent cut flower variety and fine bedder. Each, \$1.00; 2nd size, \$1.50.

LILIUM CANDIDUM

THE FINEST HARDY LILY THAT GROWS

This is one of the oldest, loveliest and best-known Lilies. The flowers, of which there are three to twenty on each stem, are snow-white, with heavy yellow stamens and of the most delightful fragrance. It is hardy, and will thrive in any ordinary garden soil, preferring a position where it can get plenty of light and air. Blooms in the open ground about June 20. We recommend early planting of this Lily, as it makes its leaf-growth in fall, and thus prepares itself for early blooming. The bulbs which we offer are of an improved type over those usually sold, the flowers being larger and the petals thicker, which makes it more lasting.

Selected Bulbs, 85c. per dozen; \$1.75 for 25; \$6.50 per 100.

Mammoth Bulbs, 20c. each; 50c. for 3; \$1.50 per dozen; \$10.00 per 100.

"Jumbo" Bulbs, 50c. each; \$5.00 per dozen.

GERMAN IRIS, OR FLEUR-DE-LIS

One of the most desirable early spring flowering plants. No garden is complete without a collection of these beautiful flags.

- Lutea.** A fine yellow variety, very showy.
- Honorabilis.** Orange, lower petals brown. This is distinct and very showy.
- Queen of Gypsies.** Lavender and bronze, feathered rich plum white and buff.
- Walneri.** Lilac, with lower petals dark blue.

- Royal Blue.** Deep purple, very early and free flowering.
- Snowwhite.** One of the best white sorts.
- Pumila.** Early flowering. Dark blue dwarf.
- Celeste.** Fine satiny blue. This is the most beautiful Iris and highly recommended for cut flowers.

- Mme. Chereau.** Pearly white, daintily edged lavender.
- Spectabilis.** An early and free deep purple.
- Florentina.** Free blooming. Large white. Mother of pearl center. Very early.
- Grachus.** Pale yellow, marked with purple.

Price: Strong, 1-year-old roots, each, 15c.; 3 for 40c; doz., \$1.50; per 100, \$10.00.

Special Offer No. 457: The set of 12 German Iris for \$1.50, prepaid.

LILIUM HARRISII

TRUE BERMUDA EASTER LILY

This mammoth white Trumpet Lily, with flowers 4 to 5 inches long, is the best of all Lilies for winter forcing and flowering, because its grand trumpet-shaped flowers, which give forth a delicious perfume, are wonderfully beautiful and expressive. For blooming at Christmas it is best to order now. Our importations this season will amount to nearly half a million bulbs, and we are happy to say that a better lot of bulbs we have never offered.

First Size Bulbs which should produce from 5 to 8 flowers, 75c. per dozen; \$5.50 per 100.

Extra Size Bulbs, which should produce from 8 to 15 flowers, \$1.80 per dozen; \$3.50 for 25; \$12 per 100.

Mammoth Bulbs, which should produce up to 20 flowers on a stalk, 30c. each; \$3.00 per dozen.

"Jumbo" Bulbs, supply very limited. 75c. each; \$8.00 per dozen.

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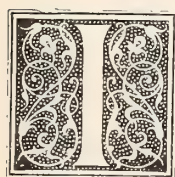
NEW YORK

133 East Sixteenth Street



From October to May these Cold Frames are filled with violet blooms. The southern exposure and protection of garden fence at the north makes an excellent placing.

It Is Not Too Late For Cold Frames Hot Beds or Greenhouses



IN FACT it is just the right time to start bulbs to be in full bloom by the last of February. For dormant roses, hydrangeas and such semi-hardy plants that beautify your grounds and stoops in the summer, frames set over a pit about six feet deep at the back, with sides either boarded or having masonry walls, make an ideal place to carry these plants through the winter, bringing them out in the spring in splendid condition, ready to take their places on your grounds along with the robins' return.

There is still time to transplant some parsley, or, by using the frames as hot beds, start another lot of lettuce, radishes and Swiss chard greens, etc.

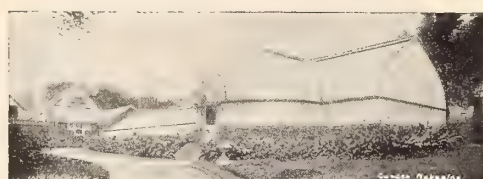
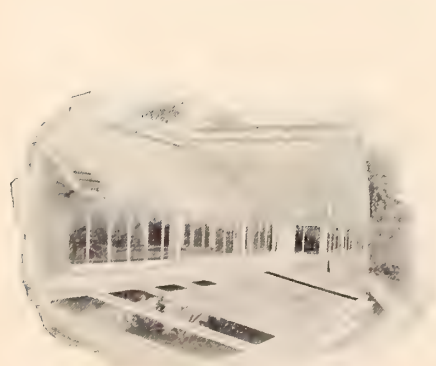
So many of THE GARDEN MAGAZINE readers have taken to cold frames that we were deluged with all sorts of questions as to growing possibilities, preparation of soil, how, what and when to plant, the difference between cold frames and hot beds, etc., that we were driven to publish a little book called "Two P's or the Pleasure and Profit of Cold Frames." It answers most of the queries, tells what these frames will do and not do, has plenty of illustrations showing their actual use, good locations and a reliable planting table besides. It also gives some suggestions how to have tomatoes six weeks ahead of your neighbor, or the getting of a month's start on rhubarb and asparagus.

We want you to have this booklet—want you to have it not only because of its "pleasure and profit" but because it also says something about our kind of greenhouses, the single compartment ones for the amateur or the more pretentious ones for private estates and extensive grounds.

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A charming combination of curvilinear palm house, even span general greenhouse and ornamental potting room, with a library room for the employees.



Storage pit in connection with a greenhouse. On a bench at the other end are grown violets.

These frames both increase the possibilities of the greenhouse and give a month's start to the garden vegetables in the Spring.

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Double wire bracelet, with diamonds and seven Montana sapphires set in platinum, - - - - -	each \$95
Double wire bracelet, with diamonds and baroque pearls set in platinum, - - - - -	each \$95

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Gold bangles, -	each \$13.50, \$15.50, \$17, \$20
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The editors of FARMING announce an Almanac for 1907. It will be printed on good paper, from clear type and will be well bound. It will contain everything that its predecessors have contained and many other useful facts besides. It will cover completely all subjects of interest of the farm, field and home. The following is a partial list of the subjects covered.

CONTENTS

The Calendar for 1907.
Signs of the Zodiac and What They Mean.
Astronomical Calculations.
Eclipses for 1907.
A Description of the Planets and When They are the Brightest.
The Moon: What its Effect is on Weather and Crops.
When the Seasons Begin and End.
Church Days and Movable Feasts.
How to Obtain Standard Time.
Morning and Evening Stars for 1907.
Table of Tides.
Rates of Postage.
Freight Classifications.
Game Laws of the United States and Value of Game to the Farmer.
Legal Holidays in the Various States.
What the Names of the Months Mean.
Rules for Foretelling the Weather With and Without a Barometer.
Brief Description of the Weather Bureau, its Free Service and the Meaning of the Weather Signals.
Average Annual Rainfall in the United States.
Organization of the United States Department of Agriculture, What its Special Purpose is, and How it Will Help the Farmer. With the Name and Director of Each Bureau.
Name and Location of all of the State Experiment Stations With a Note of Their Free Service to Farmers.
Farmer's National Congress.
National Dairy Association.
National Wool Growers' Association.
National Forestry Association.
National Good Roads Association.
National Bee Keepers' Association.
National Federation of Horticultural Societies.
National Nut Growers' Association.
National League of Commission Merchants.
National Live Stock Breeders' Association.
Names and Addresses of Officials in Charge of Farmers Institutes.
Southern Cotton Association.

Patrons of Husbandry (National Grange) its Purpose and Names of its Officers.
Acreage, Production, Value, General Information and Statistics of the Principal Farm Crops, Fruits and Vegetables of the United States in 1906.
Wheat, Oats, Rye, Barley, Buckwheat, Cotton, Sugar, Hay, Rice, Hops, Potatoes, Onions, Beans, Flax, Information and Statistics of the Live Stock in the United States.
Cattle, Horses, Mules, Sheep, Poultry, Milk, Butter, Egg and Cheese Statistics.
Principal Insect Enemies and Diseases of Crops and How to Identify Them.
Formulae of Insecticides and Fungicides.
A Spray Calendar.
How and When to Spray.
What Fertilizers are Composed of and the Special Requirements of Certain Crops.
Formulas for Mixing Home Made Fertilizers.
How to Buy the Best Fertilizer for the Least Money.
Definition of Terms Used in Discussing Fertilizers.
How Grain Will Shrink.
How to Measure Corn in Crib, Hay in Mow
Rules for Business Farmers.
Farm Arithmetic.
Some Extracts from Poor Richard's Almanac.
Farm Laws.
Descriptive and Comparison Tables of the Metric System.
Population of Cities, States and Countries.
Dates of Conventions and General Political News.
Talks to Boys and Girls.
The Patent Medicine Curse.
Domestic Animals in the United States.
Religious Denominations of the United States.
Value of the Coins of all Nations.
Rulers of all our Countries in the World.
The Panama Canal.
Some of the Principles of Farm Law as Based on the Common Law.
The World's Record for a Mile for Automobile, Horse, Steam Yacht, Locomotive, etc.

Loss of Life by Lightning in the United States.
Height and Weight of Men and Women.
Wealth of Nations.
Value of Co-operation among Farmers.
When and How to Get the Best Market Price for Farm Products.
Points to be Remembered in Buying Horses, Cattle, Sheep, Hogs and Other Live Stock.
The Way to Get Rid of Mosquitos and Flies.
Height of the Highest Mountains and Depth of the Sea.
Progress of Forestry, Good Roads, Dry Farming and Irrigation in 1906.
Presidential Elections with Popular and Electoral Votes.
Facts for Breeders.
Value of Different Foods for Stock.
Simple Remedies for the Diseases of Cattle, Horses, Sheep, Poultry, etc.
A Farmer's Model Vegetable Garden.
Planting Time Table of Fruits and Vegetables and Field Crops.
Distances Recommended for Planting Fruit Trees.
Usual Distance for Planting Vegetables.
Seeds Usually Sown to the Acre.
Number of Years Seeds Retain Their Vitality.
How Deep in the Ground to Plant the Field Crops and Vegetables.
How Long it Takes for Various Crops and Vegetables to Mature.
How to Estimate the Cost of Farm Buildings.
Surveyor's Measure.
Some Simple Rules of Health.
First Help in Case of Accidents.
Care of the Sick.
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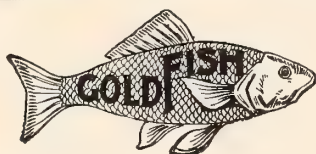
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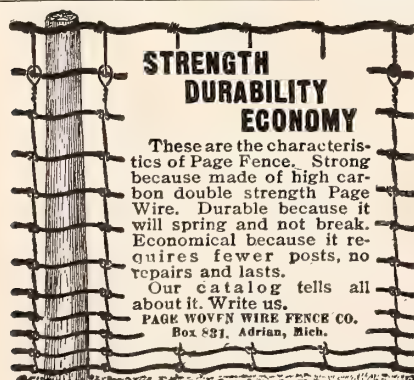
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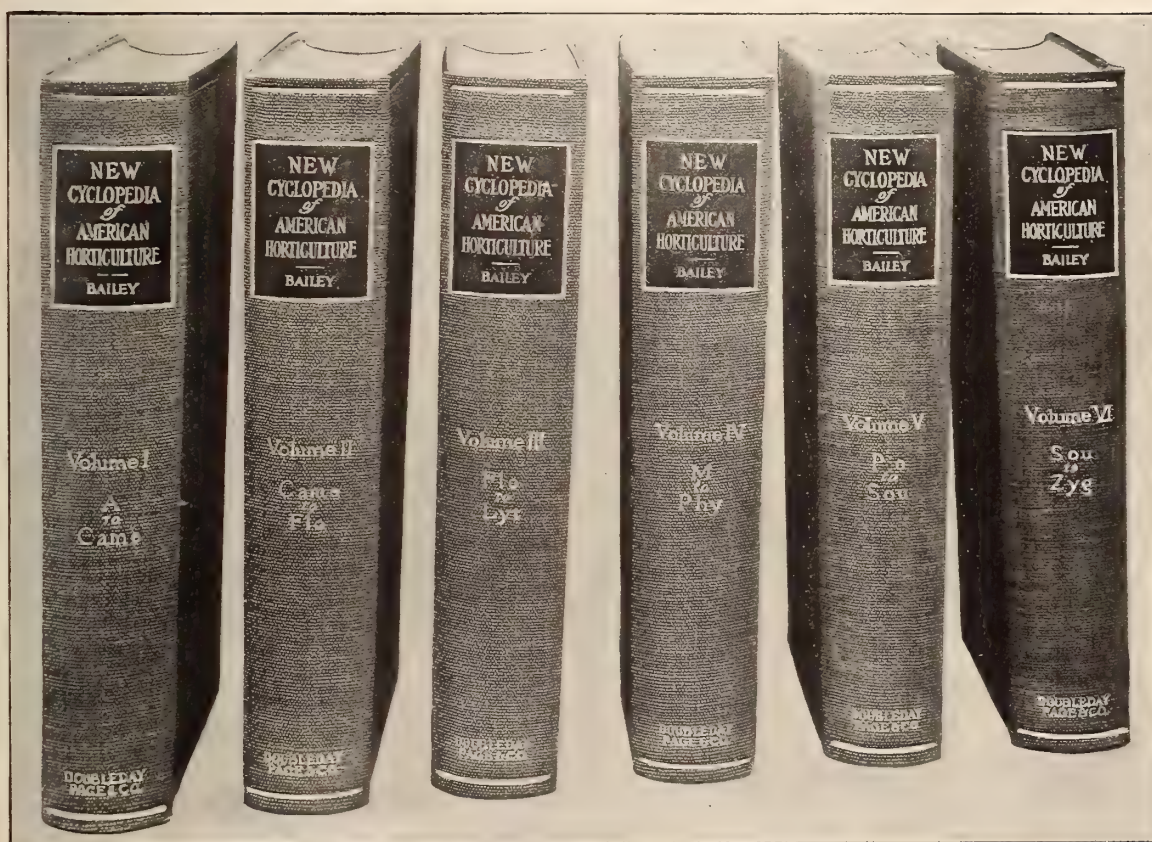
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THE TALK OF THE OFFICE



"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*.

TO SATISFY A READER

A reader of one of our magazines which prints each month a page or two of "The Talk of the Office" has written to criticize these talks, because, as he puts it, "you devote yourself in each magazine to throwing bouquets at the other three."

Surely a sad fault which we shall hereafter strive to conceal if we fail entirely to correct. Our correspondent adds:

"Why don't you write about your establishment as a whole? Tell us for example how many manuscripts you receive a year, and how you examine and decide upon them. How big a plant have you any way? How many branch telephones? I hear that you dictate your letters into phonographs—do you? What will you edify us with next fall and winter? Any prizes for ideas or contributions?"

WE BEG TO REPLY:

The reason (or excuse) for indulging in the pleasant task of "throwing bouquets" came from a belief we had that the magazines themselves as a finished product might by some grace of good fortune be interesting. To reply to questions as to how they were made, would mean a very tiresome reiteration of accounts of plans which failed to materialize. The plans which do materialize speak for themselves. Such writing would make dull reading indeed, and even the flowery language of bouquet throwing were better. Another reason is that when we give facts and figures we realize that they must seem small and unimportant—as compared with the results shown by our more distinguished contemporaries. We had the notion that since Doubleday, Page & Company is but six years old, it would be better to wait until the facts grew important enough to discuss. However, we will try to answer some of the questions propounded, not all at once, but a little each month if our courage and the good nature of our readers hold out. This month we will reply to the query

ABOUT MANUSCRIPTS

We wonder if our correspondent realizes how delicate a subject he asks us to discuss; but to answer categorically:

About a thousand book manuscripts a

year, and a good many tons to the magazines, of which we keep no continuous record. With every one we do the best we can, going through the entire mass, page by page, in the search for something new and interesting.

It is a surprising thing to see year after year that so large a proportion of the writers feel that their work will not be fully and carefully examined unless it is sent with a letter of introduction or various explanations of a personal nature that have "nothing to do with the case." We buy literary material and pictures because we think by printing them in book form or in our magazines they will, in the fullness of time, be appreciated by our readers, not because someone in the office went to school with the sister-in-law of the nephew of the writer's husband.

Another interesting thing to note is the really high average standard of the work. Even if so much of it is impossible to find market for, three-quarters of it could well be printed with dignity and would interest some people. Comparatively few of the manuscripts are silly or illiterate.

Every year we receive scores of novels which come finally to that heart breaking point where one asks, "Isn't this book as good as Blank's story which you published and failed to sell—or succeeded in selling?" Unhappily, people do not buy because a book will bear the test of just so much quality any more than because it has so many pages. There is only one reason, and that is the single elemental one—because they want it. And the publisher does not live who can tell with any scientific accuracy why readers do or do not want a book.

The editor of these notes has often been asked how many books have we refused that made a large success when issued by some other house. We can think of three, and one of these we declined because of its character—which some people found no objection to though they criticized us for printing other books which we thought highly of and believed we ought to print.

We feel our great responsibility most keenly as we contemplate a pile of manuscripts

two feet high on the table, the literary takings perhaps of a single day. It requires no great amount of imagination to see in one's mind's eye the loving labor which has gone into the writing and preparing of every one of these pages. Each manuscript represents months, and in most cases years, of work. The feeling comes forcibly to the mind of a reader who studies this great mass of writing with the persistent and patient eye that most of these good people have written a book, not because they had a consuming message for the world, but because they liked the idea of writing a book. Far be it from us to suggest that the desire to publish a book is not a worthy one, but it makes hard work for the manuscript readers.

Almost every letter which comes also asks for immediate decision. This may be natural, but we wonder if the writers realize that in most cases the longer the time taken in reaching a decision the greater the appreciation of the work. An utterly poor book is the easiest thing in the world to decide upon. A promising manuscript is often read by six or eight persons in the search for more light and guidance.

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This book has been in preparation for so long that we despaired of ever getting it out, but it is finally ready, uniform with "How to Make a Vegetable Garden" and "How to Make a Flower Garden." After all the trials and tribulations it has gone through we think it a good book, and one which will last as a guide, philosopher and friend. The author is Prof. S. W. Fletcher, and the price is \$2.00 net. (Postage 20 c.)

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COVER DESIGN—China Asters and Hardy Phlox

	PAGE		PAGE
THE GARDENER'S REMINDER	109	GROWING MUSHROOMS ON A PING-PONG TABLE	Louise Shaw 135
THE BEST TULIPS FOR OUTDOOR PLANTING	Peter Zuger 110	Photographs by B. M. Duggar and author	
THE BEST DAFFODILS FOR OUTDOOR PLANTING	A. M. Kirby 113	TOMATO VARIETIES FOR SUCCESSION	E. D. Darlington 138
Photographs by H. E. Angell, and others		RIPENING GREEN TOMATOES	E. M. Barron 140
SOME SUGGESTIVE BULB BEDS	N. R. Graves 116	IMPORTANT OCTOBER WORK	140
CLASSIFIED TABLES FOR FALL PLANTING	Harold Clark 118	MAKING CUTTINGS AND SOWING SEEDS IN FALL	H. H. Pepper 146
ALL THE BARBERIES WORTH GROWING	John Dunbar 122	Photographs by the author	
Photographs by N. R. Graves and others		THE CALIFORNIAN'S REMINDER	Ernest Braunton 146
PLANNING THE HOME FRUIT GARDEN	S. W. Fletcher 125	GARDEN PUBLICATIONS	146
Sketches by the author		MAKING LEAF MOLD	Phineas Nolte 150
FLOWERS EVERY DAY FROM CHRISTMAS TILL EASTER	I. M. Angell 128	THE FALL CARE OF LAWNS	W. R. S. 152
Photographs by the author		THE WHOLE STORY OF BULB CULTURE IN A FEW WORDS	Thomas McAdam 154
RAISING YOUR OWN EVERGREENS	John Dunbar 130	THREE MONTHS OF DAFFODILS	A. M. Kirby 158
Photographs by N. R. Graves		ANSWERS TO QUERIES	162
BULBS THAT BLOOM OUTDOORS IN MARCH	Thomas McAdam 131		
Photographs by H. G. Taylor and N. R. Graves			

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HARDY LILIES FOR FALL PLANTING

ALL Lilies are better for Fall planting, but many varieties of Japanese Lilies do not arrive from Japan before the ground freezes up. There is one method, however, by which they can be planted late in November or in December, and that is to cover the ground in which they are to be planted before it freezes with 8 to 12 inches of stable manure. This will prevent the ground from freezing, and the manure can be removed and the Lilies planted upon their arrival. We will not deliver until Spring any varieties of Lilies which do not arrive until after hard freezing weather, unless instructed otherwise. We repack in sand Lilies arriving too late for fall delivery and store them in a cold cellar until Spring, when they are delivered as early as possible.

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and graceful Lily; fine for planting in the grass of			Lily	2 50	16 00
orchards or meadows	1 50	11 00	Grayi. A dainty little Lily of great beauty . .	3 00	23 00

Our Fall Catalogue, containing a complete list of Japanese, American and European Lilies, Hardy Plants, Roses, Shrubs, Trees, Hyacinths, Tulips, Narcissi, and everything suitable for Fall planting, will be sent on request. New customers are requested to send references or remittances with their orders.

ELLIOTT NURSERY COMPANY
J. WILKINSON ELLIOTT, *President.* PITTSBURG, PA.

The Garden Magazine

VOL. IV—No. 3
PUBLISHED MONTHLY

OCTOBER, 1906

{ ONE DOLLAR A YEAR
TEN CENTS A COPY
DOUBLE NUMBERS, TWENTY-FIVE CENTS



The Greatest Invention in the History of Floriculture

ONCE upon a time people gardened only in the spring. And when the autumn came, the land was filled with mischievous doings for the lack of innocent pastimes.

In those days there arose a great Prophet and a great Inventor.

And the great Inventor made a pilgrimage to the humble abode of the great Prophet and said: "O Seer, I want to do something for humanity."

"Invent a new game," said the Prophet.

"And what is the best possible game for the people?" asked the Inventor.

"Consider the fable of Hercules and Antæus," replied the sage.

Then the Inventor withdrew and pondered upon the seven-times-vanquished giant whose strength was ever renewed by contact with his mother Earth. And so Fall Planting was invented.

In those days it was possible to secure a universal and perpetual patent. So the people gratefully paid annual tribute.

And the revenue thereof was very great, and the Inventor gave an equal share of it to the Prophet.

Now the Inventor's share supported all the universities in the land.

But the Prophet took his money and made a garden; for he wished to delight his soul.

But even the garden of his heart made no impression upon his money.

So he took the revenue and bought bulbs. And he scattered them over the land until every home had a garden and was full of flowers.

And the people lived happily ever afterward.

MORAL. Plant something every day this fall.

THE FOUR OVERWHELMING ARGUMENTS FOR FALL PLANTING

You avoid the spring rush.

You can select varieties more intelligently.

Less danger of "substitution."
More time to do a good job.

THE ONLY OBJECTION POSSIBLE

The only danger is that certain plants will be killed by the winter.

But the list is a small one, and the plants are not half so important as the conditions under which they are planted.

Both things are quickly understood. Anyone with common sense can be on the safe side. But to add wonderfully to one's enjoyment of home life requires some imagination, and for many people fall planting is a perilous flight of fancy. Read the rules on page 118 and you will come down safely.

THE GREAT INTERNATIONAL CONFERENCE ON HARDINESS

The first horticultural convention of world importance held in America was the Hybridization Conference of 1902, which gave a wonderful impetus to intelligent plant breeding. We are happy to announce that there will be held in this country a great International Conference on Hardiness. This will occur in 1908, the exact time and place to be announced later. The choice of theme is nothing less than an inspiration. We all know something about hardiness—or the lack of it—to our cost, yet none of us knows as much as he wants to.

We ought to have complete lists of the best hardy trees, shrubs, perennials and fruits for every locality.

We also need to know what will not endure our winters and why.

And most of all we want to know some cheap, easy way to protect plants that are not quite hardy in our locality. For haven't you noticed how often the plants we most ardently desire are on the "doubtful list"? In fact, the doubtful list is always composed of plants that are better than anything of the kind we can have without a greenhouse.

What Philadelphian, for instance, does not envy the Washingtonian his specimens of *Magnolia grandiflora*, the grandest evergreen tree of the subtropical regions? Yet the two cities are only four hours apart.

HOW YOU CAN HELP

Consider what one feature of fall planting not practised in your community might be of the greatest value to you and to your neighbors.

Try some one experiment looking in that direction which will not cost more than you can afford, and try it on a convincing scale.

For example, no one plants annuals in the fall. Yet we know that you can sometimes get sweet peas two months earlier than usual by means of fall sowing.

There are two drawbacks to annual flowers as compared with perennials—they cost more to care for and they are later in coming into bloom.

Yet if we could safely plant the most important annuals in the autumn when we have more time and when labor is cheaper and easier to get, the force of the first objection would be spent.

And wouldn't you like to demonstrate that some one favorite annual flower can be had in May instead of July by means of fall planting?

It would be no mean contribution to the science of floriculture and the happiness of mankind.

Why not make some experiment in fall planting and send a full account to Leonard Barron, Secretary of the International Conference on Hardiness, in care of THE GARDEN MAGAZINE, New York.

YOU CAN CREATE NEW AND INSPIRING GARDEN PICTURES

By naturalizing a thousand of the poet's narcissi in some meadow, wood, orchard or bank of stream. (Cost \$5.00.)

By scattering in your lawn a thousand crocuses, the gayest flowers of March. (About \$3.00.)

By planting a hundred bulbs of the sweetest blue flower that anyone ever found in his lawn, *Scilla Sibirica*. (\$1.25.)

By planting a thousand giant snowdrops on the chance that a late snowstorm will give you an effect like that on page 132. (About \$5.00 for 500.)

By planting 10,000 trilliums in an uninteresting bit of second-growth woods which now supports only grass and cows. (\$70 to \$100.)

THE JOYS OF A COMPLETE COLLECTION

Why not have fifty varieties of tulips, comprising practically all the important species and varieties so that everybody will want to come to your lawn party next spring and rave over the wonderful colors? (Fifty each of fifty varieties, \$60 to \$75.)

Or a collection that will enable you to understand what the English daffodil craze is all about? (Say a dozen each of fifty kinds, about \$25 to \$40.)

Or six each of the twenty-five best hardy lilies, except the high-priced ones. (About \$25 to \$35.)

These are the three best hardy bulbs for hobby riders. Your whole family will get the craze and you will become famous in your town as a connoisseur. You will know all the varieties. Every flower of a tulip, daffodil or lily is a thing to be separately handled and loved.

For important routine work see page 140.



An effective border planting. The tallest growing variety, Waken van Leiden, in the rear; the others, Rose Luisante and L'Immaculée. About 600 bulbs in a bed 2 x 100 ft.



For combination planting in circular beds, select tulips of the same height and season of bloom. These are Belle Alliance, red, and La Reine, white

The Best Tulips for Outdoor Planting—By Peter Zuger, Hartford, Conn.

SELECTIONS OF COTTAGE, EARLY AND FANCY VARIETIES, BY THE MAN WHO HAS FOR THE LAST FIVE YEARS PLANNED THE FAMOUS BULB DISPLAYS IN THE HARTFORD CITY PARKS

TULIPS must ever be very highly esteemed for early spring flowers, because they give such gorgeous results for such a little trouble. Practically all you have to do is to plant the bulb in the ground this fall, and reap the harvest of bloom as soon as the frost departs. Indeed, considering the slight cost of good bulbs, and the little trouble involved, is it a wonder that more and larger plantings are not seen in our private gardens. The most striking effects are produced by massing contrasting colors.

The last week in October, and the first in November is the best time for planting, and it is well to have the ground in good condition ahead of this time; but planting can be done all November. The advantage of early planting is that the bulbs get their roots well



Make the bed highest in the centre. On light soil put a layer of manure one foot deep and cover with loam and sand, on which place the bulbs. On heavy soil, mix sand and manure with the top foot. Plant the bulbs five inches apart and the bottom four inches below the surface of the finished bed

developed before winter sets in. When preparing the bed, shape it so that it will shed water; in other words, the centre of the bed must be higher than the edge. If the soil be poor, remove a depth of ten or twelve inches, put in a 2-inch layer of well-decayed manure, cover this with a few inches of good loam, followed by a $\frac{1}{2}$ -inch layer of sand. The bulbs are then set on the sand in the desired design, about five inches apart each way, and covered with four inches of good loam. The soil around the bulbs should be well firmed to prevent heaving by frost.

If the soil is heavy, it is best to mix well together the manure, sand and soil, for a depth of about twelve inches. This will insure better drainage. After shaping the bed so that the centre is a few inches higher than the edge, place the bulbs on the surface about

five inches apart, and then with a dibber plant them so that the base of the bulb is about four inches below the surface. No further attention is necessary, but it will be well to cover the beds lightly after they have been frozen to a depth of two or three inches, with leaves or litter, to prevent continual thawing and freezing. The bulbs themselves are hardy.

If tulips are planted in the hardy border, the bulbs may be left in the ground, to come up year after year, but when planted in beds that are to receive summer flowers, the bulbs have to be removed, and may be saved for planting the following November.

After they have flowered and the leaves begin to turn yellow, the bulbs should be dug up with a spading fork, and spread out in a shaded situation, to dry, when they may be



The showiest, tallest and largest-flowered garden tulip is Giant Gesneriana, deep scarlet. Flowers in May



Tulips in mixed colors please because of the dazzling brilliance of the flowers. Doubles last longest

stored on a shelf until planting time arrives. The offsets that form around the base of these bulbs should be planted separately in a sandy loam, where they can develop into flowering bulbs, which usually takes from two to three years.

There are hundreds of named varieties offered by the dealers in their catalogues, each one of which has some special merit—maybe of season of bloom, of striking color, or comparative height. These varieties are distinct and are also satisfactory in other respects.

EARLY SINGLES IN SCARLET AND CRIMSON

Brutus. The earliest scarlet, very bright with a very slight yellow feather on the edges. Grows 8 inches high.

Artus. Brilliant dark scarlet, a few days later than Brutus. Grows 8 to 10 inches high.

Belle Alliance. The best bright scarlet in the early flowering section. Grows about 10 inches high. The flower lasts well.

Couleur Cardinal. Rich, dark red, with a bright crimson edge, a little later than the foregoing varieties. An excellent tulip of rigid habit. Grows 10 to 12 inches high.

Thomas Moore. Rich orange scarlet. Grows 12 to 15 inches high; sweet-scented.

Keiserskroon. Vivid red, with a broad deep yellow margin. Grows 15 inches high, lasts well. An excellent tulip in every respect.

PINK FLOWERED EARLY SINGLES

Rose Grisdelin. The dwarfiest and best bright pink bedding tulip. Grows only 6 inches high.

THE BEST EARLY YELLOW SINGLES

Chrysolora. The best early yellow bedder. A large and beautiful flower. Grows 10 inches high.

Canary Bird. Clear yellow. Grows 10 inches high; very early.

Pottebakker. Pure yellow. Grows 12 inches high. A well-known, large flower.



Early single tulip, Thomas Moore. Orange-scarlet; 12 to 15 inches high, fragrant

Yellow Prince. Rich golden yellow; large and sweet-scented. Grows 12 inches high; very early.

Mon Tresor. Grows 10 to 12 inches high. Large flower.

MAY-FLOWERING OR COTTAGE TULIPS

These are the most popular for the average garden, coming into flower from one to two weeks later than the early varieties.

As cut flowers they are superior, lasting a week or more in water. They are of a free and graceful habit, and grow from 18 to 24 inches high, bearing flowers of brilliant colorings on long, strong stems. They can be used with great effect in both borders and beds, either in solid colors or in combinations. Among the best of this section are:

Giant Gesneriana. Dazzling crimson-scarlet, with metallic blue-black centre.

Grows 2 feet high. The showiest, tallest, and largest-flowered of all tulips.

Golden Eagle. Deep yellow. Similar, except in color, to Giant Gesneriana.

Bouton d'Or. Deep, rich golden yellow, with dark centre. A small flower, but very effective; considered by many to be the finest yellow tulip.

Nigrette (the black tulip). Jet black in color, resembling in form Bouton d'Or.

Shandon Bells. When opening the flowers are a delicate primrose, flushed with pink, changing as they age to rosy carmine.

Maiden Blush, or Picotee. A beautiful white flower, the edges changing to clear pink. Very dainty in effect, and long lasting.

Florentina. A very small bulb that bears one or two large, handsome yellow flowers on each stalk.

WHITE SINGLE EARLY

Pottebakker White. The best early white bedding tulip. Grows 10 to 12 inches high.

White Hawk. A beautiful large pure white. Grows 10 to 12 inches high.

La Reine. White, slightly tinted pink; 10 to 12 inches high. Excellent form; lasts well.

L'Immaculée. One of the dwarfiest and earliest of pure white tulips. Grows 6 inches high.

DUC VAN THOL FAMILY

The varieties of this group form a distinct class of themselves. They come in scarlet, red and yellow, yellow, crimson, rose and white. They are grown because they are among the earliest to flower; the different colors come into bloom simultaneously, and the plants grow to the same height, 7 to 8 inches high. There are also a double yellow and a double scarlet Duc Van Thol.

DOUBLE FLOWERING TULIPS

While these are not equal to most of the single ones in brilliancy, yet they are valued



Double flowers last longer than single, and are good for cutting. Couronne d'Or, best rich yellow, early double



Good type of the single early tulip. Prince of Austria. Orange-red, fragrant. Good for bedding only



May flowering or Cottage tulip, Golden Crown. Yellow, splashed with red. Good for cut flowers

TYPES OF THE SIMPLY AND BRILLIANTLY COLORED EARLY AND GARDEN TULIPS

because the blooms are more lasting. Early varieties, such as Duc Van Thol, Murillo, Imperator Rubrorum, Titian and the Tournesols are valuable for forcing. The later flowering varieties will not bear forcing but are very effective in beds and borders. The following are the best for bedding purposes:

Couronne d'Or (Crown of Gold). The best double yellow bedding tulip. Grows 10 inches high.

Yellow Rose. A beautiful yellow, growing same height as Couronne d'Or; later and more fragrant.

Tournesol Yellow. Shaded with orange. Grows 8 inches high.

Rex Rubrorum. Bright scarlet. Grows 8 inches high.

Imperator Rubrorum. Similar in height and color with Rex Rubrorum, but flowers earlier. The best double scarlet.

La Candeur. The best pure white double tulip. Grows 8 inches high, and when planted in combination with Imperator Rubrorum is very effective.

Rose Blanche. Pure white. Grows 8 inches high. Excellent for bedding. Earlier than La Candeur.

Salvator Rosa. Deep rosy pink. Grows 7 inches high. Early.

Murillo. The best light pink; long lasting. Grows only 6 inches high.

PARROT OR DRAGON TULIPS

There are but few varieties in this curiously interesting section, which is not very popular, because the flowers lack the neat precision that seems to be part and parcel of a tulip. The petals are irregularly cut, and fringed in a variety of colors. They have a striking and showy effect in borders, where they propagate freely if left to come up year after year. The few good varieties are:



A flamed and feathered rose, Reine Miranda. An ideal "rectified" flower of the late or florists' tulip



Bybloem tulips are marked with brownish or purple tones on a yellow ground. La Victoreuse. Each grower has his own named kinds



A rose tulip, marked with shades of red on a white ground. Named varieties of "broken" tulips are not usually catalogued

Constantinople. Red, striped orange, with black markings.

Lutea. Clear yellow, feathered with red and green. Very large.

Rubro Major. Bright crimson, large flower, very rich in effect.

Markgrave of Baden. Yellow, flamed with scarlet; very showy flower.

Carmoise Brilliant. Brilliant carmine.

Tulipa Greigi. A vigorous growing tulip, attaining a height of 15 inches. The foliage is broad and green and heavily spotted with brown; flower goblet shaped, orange-scarlet, from 4 to 6 inches in diameter.

THE BEST MIXED COLORS

Tournesol. Red, with narrow edge of yellow. Grows 8 inches high.

Titian. Red, bordered yellow. Grows 8 inches high. Similar to Tournesol, but with larger yellow margin.

Marriage de ma Fille. Crimson and

white, flaked and finely striped. Grows 12 inches high. Late.

DARWIN TULIPS

These are all breeder tulips of vigorous growth, usually reaching more than two feet high. The many varieties cover a great range of self or solid colored, finely formed flowers in the following shades: slate heliotrope, mahogany, claret, cherry. They are especially desirable for the hardy border, and bloom late in May.

THE FANCIER'S CLASSIFICATION

Young tulips raised from seed are called "seedlings" until they have bloomed. When they first flower they are called "breeders." These flowers are invariably of one color throughout, although the seed may have been saved from variegated blossoms. After some years the petals of these hitherto self flowers become striped, and they are then said to "break," or "rectify." If the stripings are clearly marked and of good pure colors, the flowers are spoken of as having a good strain. A "rectified" tulip is synonymous with a tulip having a good strain. These rectified flowers are divided into the three classes: bizarres, bybloemens, and roses.

The bizarre tulip has a yellow ground with shades of orange, brown, scarlet and crimson.

The bybloemen have a white ground, marked with black, brown, lilac, lavender, etc.

The rose has a white ground, variegated with shades of crimson, pink, scarlet, cerise.

The various classes of rectified tulips have the petals either feathered or flamed. A feathered tulip has a dark colored edge, gradually becoming lighter toward the centre of the petal, often shaped like the flame of a candle. Sometimes a tulip is both feathered and flamed.



A well formed and finely marked bybloem, Maitre Partout, red and pink on a white ground

TYPES OF "RECTIFIED" OR "BROKEN" LATE FLOWERING FLORISTS' TULIPS



SCHEEPERS' MAY FLOWERING TULIPS

OUR reputation for supplying bulbs of the highest quality has been built during a quarter century of service to the finer American estates and gardens.

To encourage an appreciation of these superior bulbs in the finer varieties among a wider circle of garden lovers, we have made a reservation in Holland of a supply of the tulips illustrated, for delivery and planting this fall.

Order at once, as supply is limited. It is not necessary to send money now. You will receive a bill for payment when bulbs are delivered. Prices quoted are for five bulbs of a variety.

1—Ellen Willmott	\$.50	10—The Bishop	\$2.50
2—Bleu Aimable	.75	11—Afterglow	1.75
3—Bronze Queen	.50	12—Yellow Perfection	.50
4—Siren	1.75	13—Princess Elizabeth	.75
5—Vulcan	2.25	14—Valentin	.80
6—Louis XIV	1.75	15—Louise de la Vallière	2.00
7—Bacchus	1.75	16—Fairy	.50
8—Clara Butt	.50	17—La Tulipe Noire	.50
9—Aphrodite	2.00		\$21.05

If ordered before June 15th, you will benefit by discount of 25%. Thus this collection of 5 each of these 17 superb varieties, (85 bulbs) individually labeled, with full planting directions, will cost \$15.79.

Catalogues on request. Please
mention specific interest

JOHN SCHEEPERS, INC.

Flower Bulb Specialists

522 Fifth Avenue

New York City

Numerous gold medals, trophies
and other highest awards have
been received for Superior Quality

We guarantee to replace gratis
any bulb which does not produce a
perfect flower under ordinary care

Before Upsonizing

Many women put up with the depressing atmosphere of a dismal, gloomy kitchen—simply because they fear that remodeling would be too expensive.

After Upsonizing

Upson Fibre-Tile and Upson Board quickly build a cheerful, cleanable interior like that shown below—and at about 1/10th the cost of ceramic tile.



For about \$10, east of the Rockies, you can buy enough Upson Fibre-Tile for the wainscot of a 9' x 12' kitchen, exclusive of labor, trim and cost of finishing.

You, too, can have bright and cheerful kitchen walls

NEARLY every woman longs for a kitchen with inviting walls that can always be kept spic-and-span.

For every one has an ideal bathroom or kitchen in mind. But many have denied themselves the delight of modern walls in these rooms because they thought remodeling too expensive.

You needn't delay another day! Upson Fibre-Tile makes it possible for every home to have tile-like walls in kitchen, bathroom, or laundry—attractive, washable, and as good-looking as ceramic tile—at about 1/10th the cost.

The dependability of Upson Fibre-Tile has been proved beyond question by its successful use in many thousands of homes, stores, and factories. It

is simply refined lumber that comes in big, stiff panels which any good carpenter can apply with little muss, dirt or delay.

When properly applied, Upson Fibre-Tile, like Upson Board, lies flat on the wall. It successfully withstands the extreme conditions of bathroom or kitchen.

Being securely nailed, it cannot work loose like tile-finished substitutes that are merely stuck to the walls. Applied with patented Upson Self-Clinching Fasteners, Upson Fibre-Tile is the one tile-board that eliminates ugly, disfiguring nail-marks.

The Upson dealer who sells Upson Board can be depended upon to give you the best building materials at honest prices. His choice of Upson products proves that he puts quality first.

Send six cents today for portfolio of Upsonized Interiors and new booklet, "The Snow-White Lining," showing many beautiful installations of Upson Fibre-Tile.

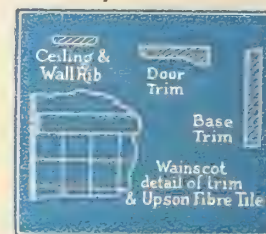
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518 Upson Point, Lockport, New York

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ELIMINATE NAIL-MARKS



The detail sketch above shows how the prongs of the Upson Fastener anchor the board from the back—thus eliminating all nail-marks from the exposed surface.



UPSON BOARD

PROCESSED

Whenever you see or hear of color used as an identification for wallboard, think of dependable Upson Board with its famous Blue-Center. In Upson Board was first conceived the idea of color with wallboard as a trademark.



Two methods of "natural" planting for daffodils. The essential point is the avoidance of regularity in both the form of the masses and their distribution

The Best Daffodils for Outdoor Planting—By A. M. Kirby, New Jersey

ADVICE FROM A PROFESSIONAL BULB EXPERT WHO HAS MADE DAFFODILS A PERSONAL HOBBY, HAVING TESTED IN HIS HOME GARDEN EVERY VARIETY COSTING LESS THAN \$2.00 A BULB

BECAUSE of their bright colors and infinite variety of form, the daffodils appeal irresistibly to the lover of hardy spring flowers. True, their colors are grouped within a very narrow range of yellow and yellowish white, with a very few pure white, and some of the early new kinds have wholly red trumpets, such as "Red Star." The very coloring, however, like rays of sunshine among the green, is especially welcome among the burst of gorgeous hues that we get from the other spring bulbs, such as the tulips and hyacinths. The long trumpets or daffodils proper, are the best known. The short-crowned kinds include the poet's narcissus and the cluster-flowered Tazettas, of which the so-called Chinese sacred lily is the most popular type. There are a host of species and hundreds of varieties, and the various sections have been hybridized and crossed one with another, till only the connoisseur can successfully thread his way through the maze of modern introductions.

In this country are several amateurs who possess fine collections, but I do not know of anyone who has bulbs worth over \$5 each, and from this price down to 5 cents each, hundreds of distinct and beautiful varieties may be selected. Some English amateurs have bulbs which they value at \$250 each.

A close club of six wealthy daffodil lovers has been formed to buy up any new seedling of special merit which has not yet got into commerce. When one of the band of six dies, his bulbs of the exclusive daffodils are to be distributed among the remaining members of this monopolistic club. Under this compact, it is not unusual for some of the members to pay \$500 for the entire stock of some especially fine new daffodil, and if

such "stock" consists of only one or two bulbs, they like it all the better.

It is in the hardy garden border, with its old, rich, deeply prepared soil, that daffodils attain perfection. Little colonies of the different varieties interspersed among the various herbaceous plants and shrubs are most beautiful when in bloom. There they seem to fit their setting and thrive better than under any other method of culture, and the protection and partial shade of the other plants prevents the rich coloring (especially of the red rimmed daffodils) from fading out. For formal bedding on the lawn, daffodils are not adapted.

Plant in the open border, any time between August and November; the earlier, the better, because daffodils like to make roots earlier in the fall than most other fall bulbs.

The poeticus types, especially, under nature, commence to throw out new roots almost before the old roots have died off. They thrive in almost any good garden soil. The only thing to avoid is "wet feet," that is, stagnant water in contact with the bulbs, and manure. Manure is all right if it does not come nearer than an inch below the bottom of the bulbs. Pull up a sickly looking daffodil in the spring and you will usually find the bulb has been surrounded by manure, which has burned off the roots, if any were made.

For my daffodils I always select a plot of ground which was heavily manured for a preceding crop, and when it is dug and prepared in the fall for my daffodil bulbs, I simply add bone meal and some high grade commercial fertilizer.

The depth to plant varies according to soils. In sandy soil, plant deeper; in heavy

soils, shallower; in average loamy garden soil have the top of the bulb two lengths of the bulb from the surface of the ground. Err in having the bulbs too deep, rather than too shallow. The deeper the bulbs are planted, the later will the flowers appear, but they are often all the better for that. About four years ago I had occasion to fill in a border against the house, raising it about two feet at one end. I forgot all about the clump of double Van Sions which had ripened off, and did not show above the surface. The next spring, much to our surprise, up popped the daffodil buds, about ten days later than usual, but the flowers were larger and finer than ever before, and they have flowered every spring since, although the bulbs must be two and one-half feet below the surface.

NATURALIZING IN THE GRASS

All daffodils may be "naturalized," that is planted out in the meadow, broadcast, and let alone, but the big, high-priced thoroughbreds will gradually revert to the wild, simple form. For this reason it is folly to buy the more expensive sorts for this purpose. The work of planting should be done after a rain, when the ground is soft. Have an old spade handle sharpened like a dibber. Eight inches from its point fasten a cross piece, for the foot to rest on when thrusting the point into the ground. Press the point into the ground clear up to the cross piece, then wiggle the handle a little, to make the hole larger at the bottom, and remove it, and put in your bulb, big end down, and fill in with earth. The distance apart to plant is a matter of taste or money, but they should not be farther apart than six inches.

I cannot say positively which are the best

daffodils—the best yellow, the best white, and so on. My purse has not allowed me to indulge in bulbs costing over \$2 each. Many new and supposedly superior varieties are catalogued in Europe at from \$10 to \$50 per bulb. I have grown many varieties, but their cost has been from 5 cents to \$2 per bulb. Between these values there is to be had a selection of from 200 to 300 varieties—sufficient to give satisfaction and pleasure to all but the extremest daffodil enthusiast.

BEST DAFFODILS FOR OUTDOOR PLANTING

The best extra early yellow trumpet that I have grown is Early Bird, but earliness is its merit. Compared to Glory of Leiden, which has flowers five inches across, about three weeks later, it is a pigmy.

The richest golden trumpet is Trumpet Maximus, but it's a shy bloomer. It must have a specially congenial situation, and be planted six to eight inches deep, in moist but well-drained soil. Under such conditions it will sometimes throw up flower stalks three feet high.

The best all-round yellow trumpet—for garden, naturalizing, pot culture, forcing, and cut flowers—is Golden Spur.

Among the all-yellow trumpets that I have grown I recommend the following: *Early*—Ard Righ, or Irish King; large, does best in partial shade. Early Bird; I have had it in flower in the open April 12th. Golden Spur; Free. Good for cutting. *Midseason*—Emperor; a fine flower of much substance. Maximus; shy blooming, but of superb color. *Late*—Glory of Leiden; the biggest and most lasting flower.

Among the white-winged, or bicolors, I like: *Early*—Victoria; very large and of lasting substance. *Midseason*—Empress; large and fine, rich yellow trumpet. Horsefield; earlier than Empress; very handsome, but is becoming diseased. *Late*—Madame Plemp; a large, bold flower. Grandee; for succession; dwarf, but free flowering.

Among the all-white trumpets I recommend: *Early*—Cernuus Albicans; a very graceful "Swan's neck." Mrs. Thompson; strong, free flowering and large. Princess Ida; small, but curiously edged with yellow at the mouth. *Midseason*—William Goldring; a distinct "Swan's neck," with perianth petals overhanging the trumpet. *Late*—Madame de Graaff; most beautiful, and lasting.

Among the lesser types of the long-crowned daffodils, and desirable for a collection, are: Johnstoni; a good naturalizer. Thin, graceful flowers of yellow. Cyclamineus; little yellow cyclamen-like flowers three inches long. Bulbocodium; hoop petticoat shaped flowers of white or yellow. Pretty in pots, or on rock work. Humei; Hume's dog-eared daffodils. Small straight trumpet, with overhanging perianth petals like dogs' ears. The tridymus group, a series of new hardy cluster flowered daffodils.

THE MEDIUM-CROWNED OR CUP DAFFODILS

These are hybrids, between the Ajax (trumpet) and the Poeticus races, and have



Trumpet daffodils, showing the range of size. Glory of Leiden the largest known; and Queen of Spain. In the centre the fragrant Jonquil rugulosus

the greatest variety of form and coloring, many with red-rimmed crowns, and one or two new and expensive varieties have the crown entirely red. Crosses between yellow trumpets and the poet's narcissus have produced the popular Incomparabilis (early and midseason) and Barrii and Leedsii (late) sections, flowers having medium length crowns, richly colored.

Among the Incomparabilis varieties that I prefer are: *Early*—Sir Watkin; large and handsome, very free, full yellow. *Midseason*—Autocrat; every flower as perfectly



If you have double Van Sion as good as this, take good care of the bulbs. The trumpet is well defined and the flower without a trace of green

formed as if cut out with a die; full yellow. Stella Superba; white perianth and yellow cup. Very handsome as a cut flower. *Late*—Beauty; large, handsome star-like flowers of yellow, crown edged orange red. Gloria Mundi; large flower, the cup heavily margined with red.

Of the Barrii group I select: Conspicua; a large flower, yellow, with bright red edged crown. Flora Wilson; white perianth, yellow crown, edged red; very striking. Sensation; perianth white, crown canary, edged red.

Specially suitable for naturalizing and cutting are the varieties of the Leedsii group, all having white petals, and a white or sulphur-white cup. Duchess of Westminster; large and beautiful. Katherine Spurrel; hooded, white perianth, cup canary yellow. Mary Magdalene De Graaff; broad spreading perianth of white, crown cream, suffused terra cotta. Mrs. Langtry; pale creamy yellow, remarkably free flowering and excellent for cutting.

SHORT-CROWNED OR SAUCER DAFFODILS

This group is typified by the poet's narcissus, with its very short or shallow cup. Hybrids, with some of the larger cupped sorts, having large, flattened, disc-like cups prettily fluted, are known as Burbidge's and Engleheart's daffodils.

Among the varieties that I have grown, and recommend are: *Midseason*—Burbidgei; Baroness Heath; yellow, with orange red cup. Crown Princess; cream white, light yellow cup, edged orange. *Late*—Sequin; glistening white, with flat golden cup.

The two best varieties of the fragrant and pure white poet's narcissus, and flowering earlier, are: Ornatus (midseason), and King Edward VII; a large form of Poeticus ornatus, but it is more expensive.

The new hardy cluster flowered "Poetaz" group is the result of crossing the poet's and the tender Polyanthus (*N. Tazetta*). I specially like Elvira, which grows two feet high, bearing fragrant poeticus-like flowers in clusters of three or four.

DOUBLE DAFFODILS

There are no new double daffodils. The most important of the double daffodils is Telamonius plenus, popularly known as Van Sion. This is grown by the million. The ideal form is a well filled, clearly defined trumpet. Unfortunately, there is a tendency to burst the trumpet. Mr. DeGraaff of Holland says Van Sion will come with unburst trumpets one year, and burst the next, from no accountable reason. Another Holland grower says it bursts from heat. I know that in our old home garden we had a row of Van Sions that for years produced double trumpets and never burst. And I also know that practically all of the planting stock of Van Sion bulbs now comes from Italy or the South of France, and though they are grown a year or two in Holland, or in the British Isles, to get rid of the green color, yet sufficient care is not taken to select the desirable form of the old double trumpet, which is practically going out of existence.



Double Jonquil, a valuable novelty because it lasts when cut much longer than the single form. Deep yellow, fragrant



Queen Anne's daffodil. The regularly imposed series of petals gives a unique, starry effect. A very old variety but not much grown



Elvira, the best of the new poetaz type of saucer daffodil; has the color and fragrance of the poet's narcissus, and the many-flowered cluster of the sacred lily

If you have any bulbs that never burst their trumpets, guard them carefully.

Other desirable doubles are: Cernuus plenus; a double form of the white Swan's neck. Capax plenus; the "Queen Anne's double daffodil"; a star-like flower of six regularly superimposed rows of six petals each. Sulphur Phoenix; popularly known as "codlins and cream," with rose-like flowers having pale and golden yellow petals interspersed.

The "double Campernelle" is a rare variety growing about two feet high, bearing

from two to six flowers to a stem, and a strong bulb throws up from two to six stems. Deep golden yellow, and fragrant. The pure white double poet's narcissus cannot be recommended because it so often fails to flower.

A TRICK FOR CUT FLOWERS

Cut daffodil flowers when only half open, place the stems in cold water, and let the flowers expand in shade and coolness. This will preserve all of the richness of coloring of the variety, which is likely to bleach in

the hot spring sunshine. This particularly applies to the red-rimmed varieties of Incomparabilis, Barrii and Poeticus. Cut flowers developed in this manner are more lasting and are often larger than those allowed to develop on the plant.

An essential to successful indoor cultivation of the daffodils is moisture in the atmosphere. The Chinese narcissus, for instance, will often fail to expand its blossoms in the dry heat of a living room, while in the kitchen or laundry most luxuriant results are attained.



Orange Phoenix. Intermixed petals of light and dark yellow. One of the easiest to grow in any situation. There are no new large doubles



Gloria Mundi. One of the very best of the medium crown or cup section; flower larger than the average. The crown has a rich red brim, petals yellow



The poet's narcissus. Very fragrant, late flowering. Of several varieties ornatus is the most reliable and flowers early in May

Some Suggestive Bulb Beds—By H. R. Graves, ^{New York}



Hyacinths that have been forced can be planted permanently in the border. These bulbs have been undisturbed for seven years. Cover lightly with leaves in the fall, as otherwise the frost and thawing may "heave" them



The earliest of the very large trumpet bicolor daffodils, Horsfieldi; flowers over 3 in. in diameter. About 300 bulbs are used as foreground to shrubbery. Cost about \$10. For permanent beds Empress, later and stronger, is better



Five thousand bulbs in mixed early and late tulips. These gave continuous bloom for six weeks and cost about \$50. The bulbs can be left in the ground, and portulaca would continue the color scheme in summer



The stiff looking hyacinths are well adapted for planting for formal effects along a driveway. This bed contains 550 bulbs; La Peyrouse, porcelain blue, in the centre, edged by Ida, yellow. These flower at the same time



The best combination of double tulips, *Rex Rubrorum* (red) and *La Candeur* (white). These two varieties flower simultaneously, and last the same length of time. This bed, 9 x 18 feet, requires 500 bulbs, costing about \$10



Making the most of a small bed. This plot 5 x 10 ft. was planted with 225 *Rose Luisante* tulips (pink), costing about \$10. Pansies between the tulips came into flower next, and were cleared out for summer plants in June.



A red, white, and blue effect in hyacinths. This 10 x 15 oval bed took 350 bulbs, *Gertrude* (light red), *British Queen* (white), *La Peyrouse* (light blue). The red variety sometimes flowers later than the others. Cost about \$50



A combination bed of three single tulips, *L'Immaculee* (white); *Chrysolora* (yellow); *Belle Alliance* (crimson). The secret of success lies in selecting varieties of the same height and season of bloom. Diameter of bed 12 feet; cost \$20



Parterre planting in a formal garden. The oval bed, 5 x 17 ft. planted with *Cottage Maid* (white, edged rose) and *Keiserskroon* (red, edged yellow). The others, 7 x 15 ft. with *Artus* (scarlet), *La Reine* (white, rose border) and *Joost van Vondel* (crimson and white). 1500 bulbs used



The way to use up forced bulbs. These alternating clumps of mixed tulips and daffodils were set out in the fall, after forcing. After the forced bulbs have flowered, they may be ripened off and held till fall, or they may be planted immediately and summer bedding plants set out over them

Classified Tables for Fall Planting—By Harold Clarke New York

READ THESE RULES.—The fall planting of nursery stock can be successfully practised in all sections except in the extreme North, where the cold of winter settles down so early that the plants are not able to establish their root systems. The ordinary deciduous ornamental trees and shrubs, as well as herbaceous plants may be safely transplanted as soon as the active growth for the year has ceased, and even just before the leaves fall. It is not safe to move at this season any plant having soft, fleshy, or "punky" roots, or having especially thin bark; for example asparagus, eremurus, tulip trees, magnolia, sweet gum, birch and beech. Conifers and broad leaved evergreens can be planted in the fall if a generous ball of earth is moved with the roots. Mulching is advisable in all cases. The following tables contain information on all the other positively safe and universally fall planted bulbs, seeds and fruits.

BULBS FOR WHITE FLOWERS

NAME	HOW DEEP TO PLANT (inches)	HOW FAR APART (inches)	DURATION OF BLOOM (weeks)	TIME OF BLOOM		TIME TO FORCE (weeks)	SECONDARY COLOR (in combination with white)	HEIGHT (inches)	OTHER POINTS
				Outdoors	Indoors				
Common snow-drop	2	2-3	3	March	Christmas	3	green	3-4	<i>Galanthus nivalis</i> . Plant in a cool, moist, shady place. The earliest spring flowers.
Giant snowdrop	2	3	3	March	Christmas	3	green	6-9	<i>Galanthus Elwesii</i> . Two weeks later than the common one and much larger.
Scotch crocus	2-3	3	3	March	Christmas	2		3-5	<i>Crocus biflorus</i> , var. <i>argenteus</i> . The earliest cheap white crocus.
White trumpet daffodil	3-4	3-4	4	April	May		cream white	10	<i>Narcissus Pseudo-Narcissus</i> , var. <i>moschatus</i> (<i>N. moschatus</i>). Many forms.
White crowned daffodil	3-4	4-6	4	April	January	3-4	yellow corona	10	<i>Narcissus incomparabilis</i> , var. <i>albus</i> . Increases more rapidly than trumpets.
Poet's narcissus	3-4	5	4	May	January	3-4	crimson eye	12	<i>Narcissus poeticus</i> . An extremely good bulb for naturalizing in meadows.
White grape hyacinth	1-3	3-4	4-5	March	January	4		4-6	<i>Muscari botryoides</i> , var. <i>album</i> . Naturalize in grass in shady places.
Two-leaved scilla	3	4	2	March	Christmas	2		4-6	<i>Scilla bifolia</i> , var. <i>alba</i> . A very charming hardy early flowering bulbous plant.
Siberian scilla	3	4	2	March	Christmas	2		3-6	<i>Scilla Sibirica</i> , var. <i>alba</i> . Give it some protection. Good for rockery.
Bell-flowered scilla	3	4	2	May	Christmas	2		12	<i>Scilla Hispanica</i> , var. <i>alba</i> . Blooms at same time as poet's narcissus.
Star of Bethlehem	3	6	3	May			green	12	<i>Ornithogalum umbellatum</i> . The choicest of summer blooming bulbous plants.
Large-flowered wake-robin	4	6	1	May			changes to rosy pink	12	<i>Trillium grandiflorum</i> . One of the most beautiful of our wild flowers.
Madonna lily	4	8	4	June	Christmas	16	yellow stamens	36	<i>Lilium candidum</i> . Plant by September 15th. Bulbs make leaves this fall.
White speciosum lily	6-8	12-24	4	August			red-brown anthers	36	<i>Lilium speciosum</i> , var. <i>album</i> . Not as thrifty as type. Beautiful large flowers.
White autumn crocus	2-3	6	1½	Sept.			yellow anthers	3-4	<i>Colchicum autumnale</i> , var. <i>album</i> . Plant in masses. Flowers four inches across.
Christmas rose	4	12	16	Dec.	Christmas	2-3	green, rose	6-8	<i>Helleborus niger</i> . Does not like to have its roots disturbed. Give well drained soil.
Tulips, named varieties	4	5	3	April	January	3-4		6-12	<i>Tulipa suaveolens</i> . Duc van Thol White; L'Immaculée; White Hawk, very large.
Hyacinths, named varieties	5	6 to 8	3	April	January	3-4		6-12	<i>Hyacinthus orientalis</i> . Alba superbissima; Baroness van Thuyl, large truss, early.

BULBS FOR YELLOW FLOWERS

NAME	HOW DEEP TO PLANT (inches)	HOW FAR APART (inches)	DURATION OF BLOOM (weeks)	TIME OF BLOOM		TIME TO FORCE (weeks)	SECONDARY COLOR (in combination with yellow)	HEIGHT (inches)	OTHER POINTS
				Outdoors	Indoors				
Cloth of Gold crocus	2-3	3-4	2	March	Christmas	2	brown striped outside	3-5	<i>Crocus Susianus</i> . An early species. The variety Cloth-of-Gold is the best form.
Dutch crocus	2-3	3-4	2	March	Christmas	2	golden	3-5	<i>Crocus Maasiacus</i> . Naturalize in lawn. Do not mow grass for two weeks.
Trumpet daffodils	3-4	4-6	4	April	January	3-4	golden	15	<i>Narcissus Pseudo-Narcissus</i> . A double variety of this is the favorite Van Sion.
Medium-crowned daffodils	3-4	4-6	4	April	January	3-4	pale yellow	12	<i>Narcissus incomparabilis</i> . Largest crowned variety, Sir Watkin, 5½ inches across.

Bulbs for Yellow Flowers—*Continued*

NAME	HOW DEEP TO PLANT (inches)	HOW FAR APART (inches)	DURATION OF BLOOM (weeks)	TIME OF BLOOM		TIME TO FORCE (weeks)	SHADE OF COLOR	HEIGHT (inches)	OTHER POINTS
				Indoors	Outdoors				
Jonquil	3	4	4	April May	January	3	dark gold	12	<i>Narcissus Jonquilla</i> . Flowers fragrant, foliage dark green and very narrow.
Canada lily	4	12	4	July	.....	.....	orange red	3	<i>Lilium Canadense</i> . Flowers vary in color. Excellent for mass effects.
Japanese erect lily	6-8	12	4	July	.....	.....	orange	18	<i>Lilium elegans</i> . The best hardy lily for general garden cultivation.
Yellow star-flower	4	6	.....	Sept.	.....	.....	clear yellow	4-6	<i>Sternbergia lutea</i> . Needs sunny situation and a mulch over winter.
Hoop-petticoat daffodil	3	6	2	April May	January	4	pale yellow	4	<i>Narcissus Bulbocodium</i> . A beautiful little plant, excellent for pots or outdoors.
Tulips, named varieties	4	3	3	April May	January	3-4	various	6-12	<i>Tulipa suaveolens</i> . Duc van Thol Yellow; Chrysolora, Bouton d'Or.
Hyacinths, named varieties	5	5	3	April	January	3-4	pale tints	6-12	<i>Hyacinthus orientalis</i> . Herman, orange-yellow; Ida; Obelisque, has large truss.

BULBS FOR BLUE FLOWERS

NAME	HOW DEEP TO PLANT (inches)	HOW FAR APART (inches)	DURATION OF BLOOM (weeks)	TIME OF BLOOM		TIME TO FORCE (weeks)	SHADE OF COLOR	HEIGHT (inches)	OTHER POINTS
				Outdoors	Indoors				
Glory-of-the snow	2	2	2	March	Christ-mas	2	sky blue	6-9	<i>Chionodoxa Lucialia</i> . Has white eye. Replant every three years.
Glory-of-the snow	2	2	2	March	Christ-mas	2	dark blue	6-9	<i>Chionodoxa Sardensis</i> . Flowers not so large as preceding and have no eye.
Two-leaved scilla	3	4	2	March	Christ-mas	2	purplish blue	4-6	<i>Scilla bifolia</i> . Has many beautiful forms. Needs no protection.
Siberian scilla	3	4	2	March	Christ-mas	2	dark blue	3-6	<i>Scilla Sibirica</i> . A week later than <i>S. bifolia</i> . Grows in attractive tufts.
Imperial crocus	2-3	3-4	2	March	Christ-mas	2	purplish	3-5	<i>Crocus Imperati</i> . Flowers at same time as the snowdrops. Anthers are yellow
Common crocus	2-3	3-4	2	March	Christ-mas	2	purple, white, lilac	3-5	<i>Crocus vernus</i> . Excellent bulb for naturalizing in lawn. Permanent, and showy.
Grape hyacinth	1-3	2-3	4	April	January	3	blue	4-6	<i>Muscari botryoides</i> . Has urn-shaped flowers which are thickly set on the stems.
Guinea-hen flower	2-3	4	2	April	.....	.....	purple and green	9-18	<i>Fritillaria Meleagris</i> . The Dutch bulb-growers grow ten distinct forms.
Spanish iris	3	3½	3-4	May	January	8	blue, purple, violet	12-24	<i>Iris Xiphium (I. Hispanica)</i> . Plant in September. Give mulch over winter.
Bell-flowered scilla	2-3	4	2	May	January	2	blue, purple	12	<i>Scilla Hispanica (S. campanulata)</i> . Several worthy varieties in the trade.
English iris	2-3	4-6	3-4	June	January	6	violet, lavender	12-25	<i>Iris xiphioides (I. Anglica)</i> . Give same treatment as Spanish iris.
Autumn crocus	2-3	6	1½	Sept.	.....	.....	purple, pink	3-4	<i>Colchicum autumnale</i> . When established do not disturb except when crowded.
Checkered autumn crocus	2-3	6	1½	Sept.	.....	.....	purple	3-4	<i>Colchicum Parkinsoni</i> . Veins outlined with purple on white back-ground.
Hyacinth, named varieties	5	6-8	3	April	January	3-4	.....	12	<i>Hyacinthus orientalis</i> . Baron von Thuyl, Czar Peter, King-of-the-blues.

BULBS FOR RED AND CRIMSON FLOWERS

NAME	HOW DEEP TO PLANT (inches)	HOW FAR APART (inches)	DURATION OF BLOOM (weeks)	TIME OF BLOOM		TIME TO FORCE (weeks)	SHADE OF COLOR	HEIGHT (inches)	OTHER POINTS
				Indoors	Outdoors				
Crown imperial	3-6	6-8	8	March	.....	.....	red, orange, yellow	30	<i>Fritillaria Imperialis</i> . Bulb on side to excessive moisture in centre of bulb.
Peony	4	4-8	3	May	.....	.....	crimson	24	<i>Pæonia officinalis</i> . Has no enemies. Long lived plant. Divide every 7 or 8 years.
Scarlet fritillary	3	6	8	May	.....	.....	scarlet	18	<i>Fritillaria recurva</i> . Distinct from others. Inside flower yellow; var. pluriflora.

Bulbs for Red and Crimson Flowers—Continued

NAME	HOW DEEP TO PLANT (inches)	HOW FAR APART (inches)	DURATION OF BLOOM (weeks)	TIME OF BLOOM		TIME TO FORCE (weeks)	SHADE OF COLOR	HEIGHT (inches)	OTHER POINTS
				Outdoors	Indoors				
Late peony	6-8	12	8	July	.....	.....	dark red	36	<i>Lilium elegans</i> , var. <i>atrosanguineum</i> . Allow no manure near bulbs.
Tiger lily	6-8	12-24	8	August	.....	.....	red, purple spots	48	<i>Lilium tigrinum</i> . Gives beautiful mass effects. Thrives in open borders.
American Turk's cap lily	4	12-24	8	August	.....	.....	red, orange	6	<i>Lilium superbum</i> . Useful border plant. Can be planted in swampy places.
Red speciosum lily	6-8	12-24	10	August	.....	.....	pinkish red	36	<i>Lilium speciosum</i> , var. <i>rubrum</i> . If lilies are grown in open give a 3-inch mulch.
Tulips, named varieties	4	5	3	April	January and later	3-4	.....	6-18	<i>Tulipa suaveolens</i> . Duc. van Thol Scarlet; Cardinal's Hat; Tulipa Gesneriana.
Hyacinths, named varieties	5	6-8	3	April	January and later	3-4	.....	12	<i>Hyacinthus orientalis</i> . Amy, Robert Steiger; Roi des Belges.

SMALL AND POME FRUITS

NOTE: This table shows the best time to plant cuttings of the various fruits as well as the time for planting out mature bushes, etc. It is not advised to plant any of the "stone" fruit (peaches, etc.) in the fall. Pome fruits are those of the apple and pear group. Small fruits include all of the "berries."

NAME	DEPTH TO PLANT (inches)	DISTANCE APART TO PLANT (feet)		METHODS OF PROPAGATION	WHEN	AGE OF PLANT TO SET (years)	READY TO EAT (years)	OTHER POINTS
		Rows	Hill					
Apple	2 above bud	40x40	.....	root grafting buds	Winter August	2 to 3	4	Root grafting under glass in winter months in the West. In the East mostly budded stock is used.
Apple, dwarf	2 above bud	10x10 to 15x15	.....	buds	August	2	2	Better for home garden. Bear as much fruit on a given area as larger kinds, easier to handle.
Blackberries	3-4	3x8	5x5	tips, root cuttings	June July	one season	1	When shoots 18 in. high pinch back for more fruit. Protect fall set plants with a mulch.
Black raspberry	3-4	3x6	5x5	tips, root cuttings	June July	one season	1	Pinch back as advised for blackberries. Prune immediately after fruiting and burn old canes.
Currants	3-4	4x6	.....	hard wood cuttings	Sept.	1 or 2	3	Replant after 8 or 10 years yield 1 to 2 lbs. White sorts better than red equally productive.
Dewberries	3-4	3x6	4x4	tips, root cuttings	June July, Oct	one season	1	Two weeks earlier than blackberries when grown in hills train to 5-foot stakes; in rows to wire trellis.
Gooseberries	3-4	4x6	.....	hardwood cuttings, layers	Sept. Oct.	1 or 2	3	Replant every 10 or 12 years; yield 8 qts. per plant. Natives free from disease, English kinds mildew.
Pears	2	20x20	.....	buds	July Aug.	2 to 3	5	Plant on own roots or grafted on pear stock longer lived trees than when worked on quince.
Red raspberries	3-4	3x6	5x5	suckers, root cuttings	.....	one season	1	European better than American sorts but not so hardy. Only 5 or 6 good varieties from Europe.
Strawberries	to crown	2x5	2x2	runners	June July	runners	1½	Plant early midseason and late varieties. Have sufficient pollen bearing plants.
Quince	2	16x16	.....	hardwood cuttings, budding	July to Oct.	2	5	Valued especially as an added flavoring for some sort of apples. Grown mostly for jellies.
Pears, dwarf	3-6 above bud	12x12 to 16x16	.....	buds	Aug.	2	2	Important that stock be budded low. Rarely grow more than twelve or fifteen feet high.

FLOWER SEEDS FOR FALL SOWING

NAME	WHEN TO SOW		DEPTH TO PLANT (inches)	THIN OR TRANS-PLANT TO (inches)	WHEN THEY FLOWER	DURATION OF BLOOM (weeks)	COLOR OF FLOWER	HEIGHT (feet)	OTHER POINTS
	Coldframe	Outdoors							
English daisy	before Oct. 1	.....	½	4x4	April	6 to 8	white, pink	¼	<i>Bellis perennis</i> . Used for early spring bedding. Sow in rows 3 inches apart.
Evening primrose	.....	Oct. 15	¼	18x24	June	6	pale yellow	1	<i>Enothera biennis</i> , var. <i>grandiflora</i> . (E. Lamarckiana). Flowers showy.
Larkspur	.....	before Oct. 15	⅛	6x18	June	16	red, blue, white, pink, yellow	1½	<i>Delphinium Ajacis</i> . Better sown now than in spring as seeds are slow to start.
Opium poppy	.....	before Oct. 15	⅛	6x6	June	3 to 4	white, pink, red, purple	2	<i>Papaver somniferum</i> . Fall sown seed flower before spring sown.

Flower Seeds for Fall Sowing—*Continued*

NAME	WHEN TO SOW		DEPTH TO PLANT (inches)	THIN OR TRANS-PLANT TO (inches)	WHEN THEY FLOWER	DUR-ATION OF BLOOM (weeks)	COLOR OF FLOWER	HEIGHT (feet)	OTHER POINTS
	Coldframe	Outdoors							
Pansies	before Oct. 1	.....	$\frac{1}{8}$	3	May	6 to 8	various	$\frac{1}{2}$ to 1	<i>Viola tricolor</i> . Sow the seed thinly, in rows three inches apart.
Sweet alyssum	.....	before Oct. 15	$\frac{1}{2}$	6x6	June	20	white	$\frac{1}{2}$	<i>Alyssum maritimum</i> . Has many varieties. Useful as a cut flower.
Sweet peas	.....	before Oct. 15	3	4x24	May June	4 to 8	white, scarlet, blue, yellow	4 to 6	<i>Lathyrus odoratus</i> . Fall sown gives earliest flowers. Prefers moist deep soil.

VEGETABLE SEEDS FOR FALL SOWING

NAME	WHEN TO SOW		DEPTH TO SOW	THIN OR TRANSPLANT			READY TO EAT	OTHER POINTS
	Coldframe	Outdoors		Thin (inches)	At inches high	Transplant (inches)		
Cabbage	Sept. Oct.	.....	$\frac{1}{2}$	.....	3	3x3	June	Cabbage and cauliflower are seldom fall sown at present, but it is the best way.
Cauliflower	Sept. Oct.	.....	$\frac{1}{2}$	.....	3	3x3	June	Secure the earliest crop if you have a cold frame.
Corn salad	Oct.	before Oct. 1	$\frac{1}{4}$	6x6	2	.....	February	A good substitute for lettuce. Protect over winter with mulch of straw or leaves.
Lettuce	Sept. Oct.	.....	$\frac{1}{4}$	.....	3	8x12	Loose var. Xmas. Head var. Feb'y	Sow both loose and head varieties for succession. Bank frame with manure for heat.
Radish	Sept. Oct.	.....	$\frac{1}{2}$	3x8	1	.....	Oct., Nov.	With a little bottom heat in frame, radishes may be had all winter from successive sowings.
Spinach	before Oct. 1	before Oct. 1	1	6x12	2	.....	Under glass Xmas. From open March	Grow on wide ridge and give the plants a mulch of straw or litter.

SIX FAVORITE TREES FOR FALL PLANTING

COMMON NAME	STANDARD AND TRADE NAME	HEIGHT (feet)	TIME OF FLOWERING	CHIEF ATTRACTIONS	OTHER POINTS
Silver maple	<i>Acer saccharinum</i>	80-120	March, April, before leaves	Fastest growing maple, but short lived; under side of leaves silvery.	Plant alternately with slow growers for immediate effect.
Norway maple	<i>Acer platanoides</i>	100	.....	Beautiful round head, dense foliage and holds its leaves late in fall.	Excellent lawn tree, too low headed for streets; foliage pale yellow in fall.
Ash	<i>Fraxinus Americana</i>	75-125	May, before the leaves	A tall, straight, stately tree; excellent as a lawn specimen.	Prefers a moderately moist soil. Beautiful compound leaves.
Carolina poplar	<i>Populus deltoides</i> , var. <i>Carolinensis</i>	50-75	Flowers inconspicuous	Quickest growing tree there is for hiding unsightly objects.	Prefers rich moist soil but thrives anywhere. Short lived; commonplace.
Pin oak	<i>Quercus palustris</i>	80	May	Very symmetrical, pyramidal tree especially when young.	Prefers a moist bottom land. Good street tree; transplants very easily.
Elm	<i>Ulmus Americana</i>	75-125	March before leaves	Favorite street and shade tree of America; long lived tree.	Prefers a rich moist soil; does well in dry soil.

SIX FAVORITE SHRUBS FOR FALL PLANTING

COMMON NAME	STANDARD AND TRADE NAME	HEIGHT (feet)	TIME OF FLOWERING	CHIEF ATTRACTIONS	OTHER POINTS
Golden bell	<i>Forsythia suspensa</i>	8	April	Has small willowy branches 8 feet long covered with yellow flowers.	Plant against evergreen background. Rapid grower; full growth in 3 years.
Hydrangea	<i>Hydrangea paniculata</i> , var. <i>grandiflora</i>	6-8	July	Large trusses of white flowers changing to pink; last until Sept.	May be had low headed or standard high; good as single specimen.
Lilac	<i>Syringa vulgaris</i>	10	May	Sure bloomer, needs little care, always attractive. Fragrant.	Remove any suckers that come from roots, prune when done flowering.
Thunberg's barberry	<i>Berberis Thunbergi</i>	3-4	April	Has bright red berries which hold on all winter; slender branches.	Autumnal coloring beautiful; foliage assumes bronze and red tones.
Van Houtte's spirea	<i>Spiraea Van Houttei</i>	6-8	May	Produces immense wreaths of snow-white flowers. Lawn specimen.	Easily transplanted; flowers on old wood; prune after flowering.
Weigela	<i>Diervilla florida</i>	6	May, June	Produces dense mass of pink or white flowers; drooping branches.	Thrives in any good garden soil; prune immediately after flowering.

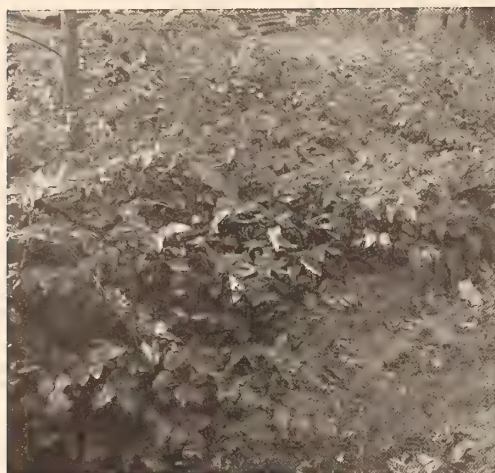


Fig. 1. The dark, lustrous, evergreen, holly-like foliage of the Oregon grape (*Berberis Aquifolium*)

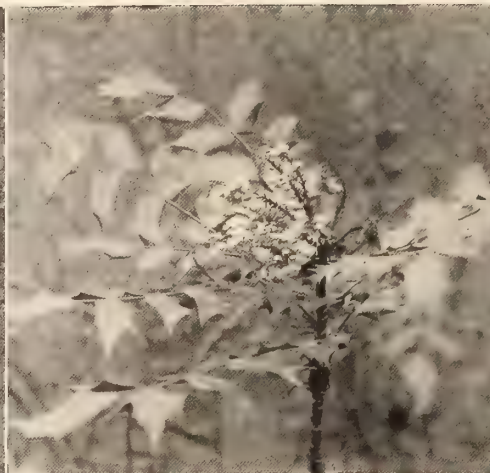


Fig. 2. The best tall barberry with holly-like leaves (*B. Japonica*). Height 5 to 10 feet



Fig. 3. The Oregon grape in flower. All barberries have small, yellow flowers. (*B. Aquifolium*)

All the Barberries Worth Growing—By John Dunbar, Rochester, New York

A GROUP CONTAINING THE BEST RED-BERRIED SHRUBS FOR WINTER CHEER, AND SOME EVER-GREEN PLANTS WITH HOLLY-LIKE LEAVES WHICH TAKE ON GLORIOUS BRONZY TINTS IN WINTER

[The twelfth of those "Little Monographs" which mark a new era in horticultural literature because they focus the attention constantly upon the comparative value of the different species, and because they give a new kind of key, a "purchaser's guide." Anyone who can show that there is any inducement to grow any other species is invited to submit proof and pictures.]

THE very best red-berried shrubs for winter effect in the North are the common barberry and Thunberg's. This is because red is the cheeriest color against the snow and because these barberries remain attractive all winter. Of course, the holly is better, because of its evergreen foliage and sentiment, but holly can be grown North only in sheltered positions. There are many other shrubs with equally brilliant berries, but all of them lose their color or the birds pick them off before the winter is over.

There are seven species of barberry worth growing for their red berries, to say nothing of the kinds with yellow or violet colored fruits. These all shed their leaves in winter and are perfectly hardy. And there are nine species worth cultivating for their evergreen foliage which is often holly-like and these species always require a partly-shaded position sheltered from the winter winds.

I. The Bright-berried or Deciduous Group

THE FAVORITE—THUNBERG'S

The one barberry that is planted more than all others put together is *Berberis Thunbergii*. (See Fig. 10.) It differs from all the others in having its berries scattered singly along the branch or sometimes in pairs, whereas the other bright-berried species bear their fruits in clusters. For this reason, a spray of Thunberg's barberry rarely makes a pretty photograph, but in real life it is beautiful enough. Even if it bore no berries, this shrub would be worth growing for the winter effect of its branches, its innumerable, slender arching branches being full of feathery grace. You cannot say that Thunberg's barberry has

the most gorgeous autumn coloring in the genus, but when you have half a mile of it bordering a drive, as in Boston or Rochester, the tones of green, bronze and red combined with the myriads of scarlet berries, the splendor of it is absolutely overwhelming. It is also the best deciduous, ornamental hedge-plant of its height in cultivation. It has the extraordinary merit of always being well furnished with foliage and branches at the base where nearly all other hedge-plants are deplorably weak. And it has the most accommodating pricklers in the world—just enough for a gentle reminder—not enough to tear your clothes.

But everything has its limitations. Thunberg's barberry grows only three or four feet high—not high enough to screen unsightly objects—and like other barberries it has bad smelling flowers.

ITS SOLE RIVAL—VULGARIS

The "common" barberry, in the opinion of many, is even more beautiful than Thunberg's, because its berries are in clusters. (See Fig. 11.) It is decidedly taller (four to eight feet), and has strong, up-growing stems. The berries make an excellent sauce. The autumn coloring is not as good as that of its rival and it looks at home in American woods, while the other does not.

This is the cosmopolitan member of the genus. Most people suppose it to be native to America, but it has only run wild here. It came from Europe and Asia. This is the species that has the greatest number of varieties, including white, yellow, violet and black-fruited kinds. The purplish-black variety *Fischeri* is particularly good. (See Fig. 12.) There is a variety with few spines (*mitis*) and one with less acid fruits (*dulcis*).

But the kind that we see everywhere is the purple-leaved variety, *atropurpurea*.

FOUR SPECIES FOR CONNOISSEURS

The next four are different enough for the collector, but they cannot compete for popular favor with the above.

The Amoor barberry (*B. Amurensis*) is so closely related to the common barberry that I often suspect it to be only a geographical form. It differs in having fewer berries in a bunch (6 to 12), upright or nodding flower clusters and a leaf which is not wider above the middle. It is a strong-growing shrub that stands drought well.

The plant known to nurserymen as *B. Sieboldi* (See Fig. 4) and to importers of Japanese plants as *B. Hakodate* is properly *B. Amurensis*, var. *Japonica* according to the *Cyclopedia of American Horticulture*. It has a dark green, almost leathery leaf and even more brilliant autumn colors than *B. Amurensis*. It is a compact, broadheaded shrub five feet high and seven feet across.

The Canadian barberry (*Berberis Canadensis*) grows two to five feet high, and closely resembles the common barberry, with which it is confused in the trade. The Canadian barberry is smaller in every way, and the flowers are paler. Also, the berries are generally oval, instead of oblong.

The Chinese barberry (*Berberis Sinensis*) has beautiful tapering olive green leaves, and can be used to excellent advantage in the choicest decorative plantings. It blooms about May 25th, the slender, pale yellow clusters of flowers hanging gracefully from the arching branches. The light, reddish brown branches are somewhat ascending at first, and later assume a drooping position. The plant grows from three to six feet tall.



Fig. 4. The interesting barberry known to the nurserymen as *B. Sieboldi* and *B. Hakodate*



Fig. 5. The only holly-like barberry that has simple leaves (*B. ilicifolia*). Half evergreen



Fig. 6. The extremely interesting hybrid known as *B. Neuberti*, and described on page 124

The showy, deep red, oblong berries ripen late in the fall.

A species from Siberia (*Berberis emarginata*) resembles the Chinese in color of fruit, but is smaller, growing only from three to four feet high. It differs also in having upright branches, with deep green, smallish leaves. The yellow flower clusters are only slightly nodding. The dull berries ripen in October and are roundish to oval, not oblong. The foliage turns yellowish red in autumn.

Even more beautiful than *B. emarginata* is *B. serrata*, known to the trade as *B. microphylla*, var. *serrata*. The small tapering lance-shaped, sharply toothed leaves distinguish it from all others. It grows three or four feet high and is decidedly ornamental

when in bloom. The small red berries drop in early winter.

The Siberian barberry (*Berberis Sibirica*) has purplish red berries that ripen in October, and fall in late autumn. It blooms about May 20th. The smallish tapering leaves are bluish green. This species forms a compact, dense, spreading bush, wider than it is high; it grows four to six feet tall, and ten to twelve feet in diameter.

II. The Evergreen Group

The nine kinds that follow are cultivated primarily for the beauty of their evergreen foliage, and especially for their bronze and even red tones in winter, although bronzing

is usually a sign of distress among plants. No broad-leaved evergreen plant is everywhere hardy in the North, because it exposes a greater evaporating surface to the sun's rays than the conifers, or narrow-leaved evergreens. When the ground is frozen the roots cannot supply sap to the leaves as fast as it is drawn away by sun heat. Therefore, give these glorious plants partial shade and shelter from drying winds. If you have planted them in exposed positions, cover them with pine boughs.

The next four species have compound leaves while the five that follow have simple leaves.

Every plant which the nurserymen call Mahonia belongs to the genus *Berberis* and



Fig. 7. Detail of the leaf of the Oregon grape (*Berberis Aquifolium*). Five to nine leaflets



Fig. 8. The narrowest-leaved barberry, an evergreen species (*B. stenophylla*)



Fig. 9. The best low ground cover among the barberries—the evergreen *B. repens*, a creeper

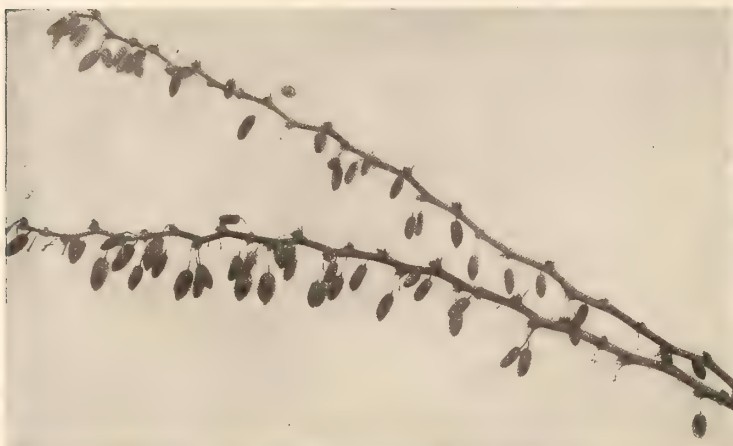


Fig. 10. The favorite red-berried shrub for winter cheer (*Berberis Thunbergii*). Berries scattered singly

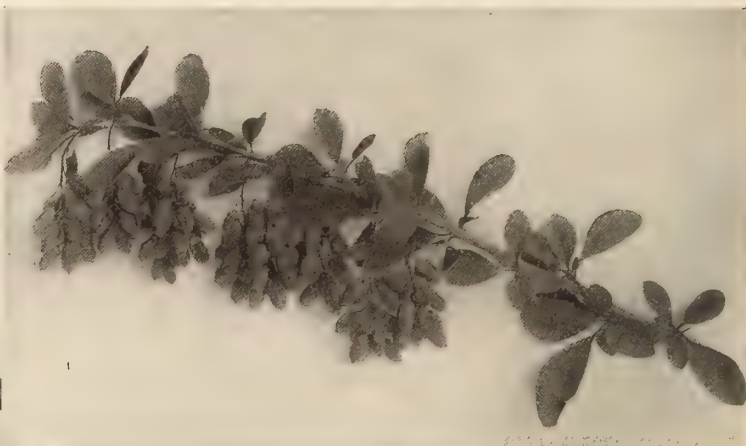


Fig. 11. The glorious clusters of the common barberry (*Berberis vulgaris*) Berries in clusters

the favorite is *Berberis Aquifolium*, which means "holly-leaved." But you would better not call it that because "ilicifolia" might be translated that way and it is a very different species. On the Pacific Coast they call it the Oregon grape or ash-berry (from the blue berries) and we suspect that what the dealers in Christmas greens now advertise as "Western huckleberry" is the same thing. Fig. 1 shows the lustre of its leaves and its perfection as a ground cover. Fig. 3 shows how well the beautiful clusters of small yellow flowers are set off by dark, evergreen foliage.

The attractive blue-black berries heavily covered with bloom ripen toward the end of July. The unfolding leaves have a delicate coppery green tint which is particularly lovely in May. The plant grows three to six feet high.

THE BEST LOW GROUND-COVER

The creeping ash-berry (*Berberis repens*) is a choice little evergreen shrub, and seldom grows over one foot to one and one-half feet tall. (See Fig. 9.) It spreads rapidly by underground shoots (stolons) and is an excellent subject for rock gardening. The leaves are roundish in outline and dull green above. The dense upright yellow flower-clusters appear about May 1st. The purplish-black berries are ripe in July.

THE BEST TALL HOLLY-LIKE KIND

The Japanese evergreen barberry (*Berberis Japonica*) is a highly ornamental shrub, from five to ten feet in height, with unbranching stems. (See Fig. 2.) It is not hardy at Rochester, but from New York southward is satisfactory in sheltered situations, but should be protected from the winter's sun. The leaves are much larger than in *B. Aquifolium*, and contain usually from seven to thirteen leaflets, and the leaves differ in being stalkless. The dense, upright clusters of yellow flowers are produced like a tassel at the top of the stem, about the end of April.

Perhaps the most beautiful of the holly-leaved section, is the California ash-berry (*Berberis pinnata*), growing only two or three feet high in the East. It resembles somewhat the common Mahonia but the leaves have nine to thirteen leaflets, and are shining deep green, with prominent spines. This species differs from the others in this section in producing its numerous dense spikes of yellow blossoms along the branches. It flowers the first week in May and ripens its fruits in August. It is not hardy at Rochester.

AN ASTONISHING HYBRID

Of the five kinds with simple leaves the first one is not evergreen at all. Neubert's barberry (*B. Neuberti*) is placed here because it has the blood of the chief evergreen species in it, being a hybrid between *B. Aquifolium* and *vulgaris*. Fig. 6 shows the astonishing result—the old growth (at the right in the picture) is like that of the common barberry,

barberries, and it can hardly be considered an improvement over them, being only tolerably hardy at Rochester. It grows three to six feet high, is of upright habit and the leaves are light bluish-green above and pale beneath.

HALF-EVERGREEN BUT LONG-LEAVED

Berberis ilicifolia (See Fig. 5) comes from Tierra del Fuego and holds its leaves half through the winter. Unlike the other barberries that resemble the holly, its leaves are simple. They are remarkably long (about 1½ inches) and nearly as wide. They are, however, rather dull. The plant grows four or five feet high and rarely flowers with us.

THREE SMALL-LEAVED KINDS

Darwin's barberry (*Berberis Darwini*) grows from two to three feet tall, and has spiny leaves, about one inch long. It is only half hardy at Rochester, but it should be satisfactory in cultivation from New York southward. The numerous orange-colored blossoms are very attractive in June. The berries are purple.

The box-leaved barberry (*Berberis buxifolia*) has small tapering, box-like (spineless) evergreen leaves, and forms a neat little shrub from two to three feet high. In a sheltered situation, with a little protection, it does fairly well at Rochester, but it was severely hurt during the winter of 1903-04. There is a low, dwarf variety of this which forms a dense cushion from nine inches to one foot high.

The narrow-leaved barberry (*Berberis stenophylla*) is a beautiful hybrid, with slender curving branches and small, bluish-green leaves. (See Fig. 8.) The small slightly drooping clusters of large deep yellow blossoms are very pretty in June and July. It requires winter protection at Rochester, but it

should be hardy from New York southward. It is remarkable in lightening up a shrubbery, because of its feathery appearance.

For details of cultivation see page 148.



Fig. 12. A variety of the common barberry with purplish black fruit (var. *Fischeri*)

while the new growth (seen on the left) takes after its other parent.

It is more interesting than valuable. As it drops its leaves in winter it really comes into competition with the best red-berried

Michigan Agricultural College

HOW A DEFINITE SCHEME ON PAPER WILL SAVE EXPENSIVE ERRORS
NOW AND INSURE MAXIMUM YIELDS OF HIGH GRADE FRUIT LATER

the second and third years with small fruits.

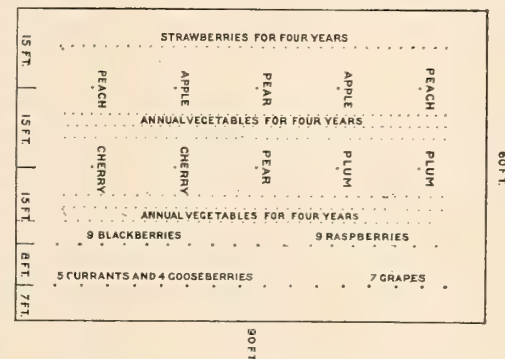
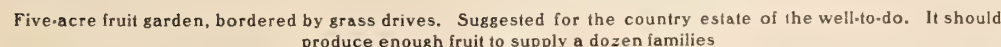
The smaller the garden the larger should be the proportion of summer and fall varieties. Winter varieties of apples and pears are staples; they can usually be bought on the general market at more reasonable prices, comparatively, than early varieties. The quickly perishable sorts are not only more difficult to buy in good condition on the general market, but they also come at a season when choice fresh fruit is most appreciated.

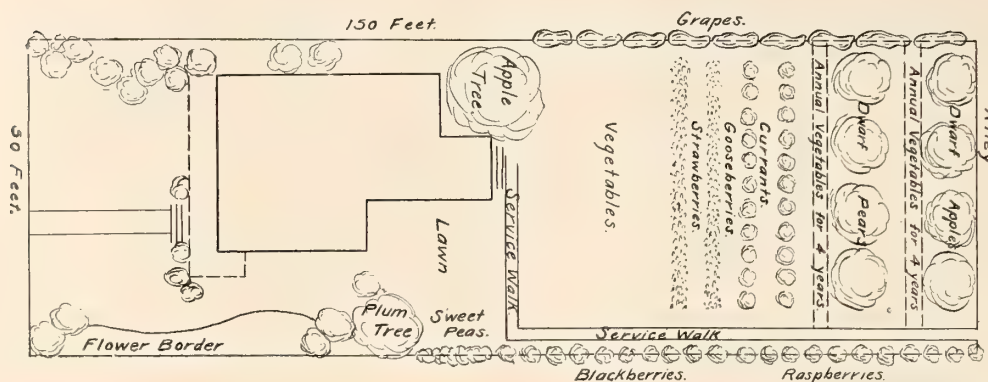
A fruit garden of $\frac{1}{8}$ acre. The apples and pears may be dwarfs. All the tree fruits should be early varieties

If a paper plan is made it is easier to dispose of the various fruits so as to secure the greatest economy of space. On paper it becomes clear that there will not be enough room to put in another row of pears without crowding the peaches or that only twelve cherry trees can be planted in a row and still leave room for turning the horse at each end. Then there is the great advantage of having in definite, concrete form, a record of one's own ideas at the time of planting for comparison with other ideas that may come later. No extended arguments are needed to convince an alert amateur gardener who is in earnest about his work that he should make a plan of the garden, before a tree or bush is bought. He will have this borne in upon him at the very outset of his labors, as a means of saving time and avoiding confusion. Too many fruit gardens are planted in a careless, hap-hazard sort of a way, and so have no definite and logical arrangement.

Proposed fruit garden of $\frac{1}{4}$ acre. The fruits suggested may be replaced by others requiring the same space. Arranged for convenience in tillage

of favorite kinds, especially on the boundaries of the garden, but the main body of planting must necessarily be of small fruits, which lend themselves most successfully to intensive culture. The man who has only a city or suburban lot can rarely afford to give any of his valuable space to the culture of tree fruits. Moreover, tree fruits do not come into bearing until three to ten years from planting. The home-maker can get results





Making the most of a 50 x 150 ft. lot. Good neighbors a prerequisite. Plum or peach trees may be used in place of apple or pear

and of beds, vines, etc., the names of all varieties planted and notes on the future plans of the garden, such as the rotation of small fruits, and the cutting out of tree fruits. Having made a good plan, follow it consistently. Often a garden that was well planned in the beginning is completely demoralized by subsequent deviations from the original purpose. If the original plan is put on paper in full detail, and followed faithfully, the results are sure to be far more satisfactory. The fall is an excellent time to settle all the preliminaries and much of the planting may also be done now.

HOW MUCH OF EACH FRUIT TO PLANT?

That depends upon the space available, the adaptability of each fruit for the locality, the personal preferences of the family, etc. The ideal home fruit garden includes all the fruits that can be grown successfully in the locality and in sufficient quantity to meet the needs and tastes of all the family. But this ideal is rarely realized; limitations of space and of funds usually make it impracticable.

CONSULT THE TASTES OF THE FAMILY

It ought to be unnecessary to advise the amateur to take into account the desires of

his family when planning his garden; yet I have seen many gardens which imperfectly reflected the varying tastes of all the members. I should be sorry to learn that anybody has adopted, without change, any one of the garden plans accompanying this sketch, unless he has first submitted the suggestions concerning the relative number of plants of each fruit to his family for approval. These plans, and all others that I have seen published, call for a fair proportion of all the standard fruits, because that is the only basis upon which one can advise, with any degree of definiteness.

THE ARRANGEMENT OF THE GARDEN

Usually it is best, if expedient, to put the tree fruits by themselves in an orchard and to plant the small fruits in connection with the vegetable garden. It is much better to associate the small fruits with the vegetable garden than with the orchard, because they love the same kind of soil that is necessary for the production of choice vegetables—one that has been made rich and full of humus by liberal dressings of manure, while the tree fruits can get along very well without so much richness. Often, however, this arrangement is not practicable. If the locality is troubled with severe winds that are likely

to injure the fruit it is well to plant a row of apples on the side that receives the prevailing wind. If the locality suffers from winter injuries, put the hardier fruits, as apples and pears, on the outside of the fruit garden, and the more tender fruits, as peaches and plums, in the centre. Give early varieties a sunny spot. Why not use fruit trees for shade and ornament around the house? They are beautiful in blossom, in foliage and in fruit. The transcendent crab is especially desirable for this purpose. Oftentimes grapes can be used to advantage on arbors or trained on fences. Where the home grounds are small, it may be a good plan, if your neighbor is affable, to plant a row of grapes on the boundary line. I have seen this co-operative fruit growing carried out very successfully, where neighbors are neighborly. Each year, at the time of fruitage, the two men would go up and down the row and divide it into halves, on the basis of fruit on the vines. Good neighbors are almost a prerequisite to success in amateur fruit growing.

PLAN TO ECONOMIZE LABOR

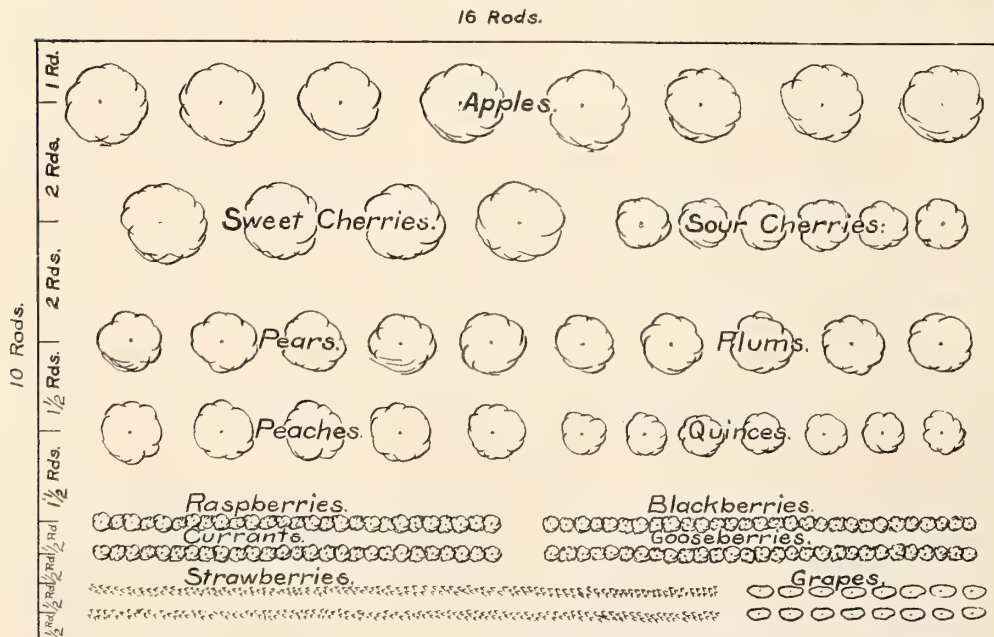
With most people the chief essential in a fruit garden is that it shall bring in as much as it costs, or more. This means that it must be arranged so that it can be tilled, pruned, sprayed, and fertilized with the least expenditure of time and money.

Ease of access adds much to the pleasure and to the economy of the fruit garden. The city or suburban garden is necessarily close to the house; but the fruit garden of the country home is sometimes unnecessarily distant from it. The idea should be to put the fruit and the vegetable gardens as close to the kitchen as is expedient. They are, in fact, extensions of the kitchen. It will, indeed, usually pay to sacrifice somewhat on the site and soil of the fruit garden in order to gain the paramount advantage of convenience.

PLAN TO MAKE TILLAGE EASY

The garden area should be oblong rather than square, because of greater ease in tillage. It is easy to demonstrate that less time is lost in turning a horse around at the ends of the rows in an oblong garden than in a square garden, but the contour of the land, and the character of the soil, should have more influence in determining the shape of the garden.

A common mistake is to leave no room for the tillage horse to turn around at the ends of the rows, and no room for tillage between the outside row and the fence. In the smallest city garden it is justifiable to plant right up to the boundary line, but not in a garden of one-quarter acre, or over. Avoid cross rows of trees on the sides and ends of the garden, borders of flowers, perennial vegetables, or anything else that would interfere with continuous, economical tillage. For example, do not plant at the end of a row of grapes, which are eight feet apart, two rows of currants, which are five feet apart, so that continuous tillage is intercepted. Plan the garden so that a busy man can get out his cultivator after supper, and go right through it from beginning to end, stirring all the



A fruit garden of one acre. Vegetables may be grown between the rows for several years. Some people may desire more grapes

ground—sides, ends and middle—without getting tangled up in a lot of irregular or crowded rows or fancy borders. The largest item in the expense of a fruit garden is the cost of keeping it well tilled. Furthermore, the need of tillage is most pressing at just the time of year when most people are the busiest. The man who can afford to spend something more than this upon his garden may wish to put into it flower borders, walks, drives, fountains, and other accessories, but the owner of a business fruit garden should keep out of his plans all these impediments to economical culture.

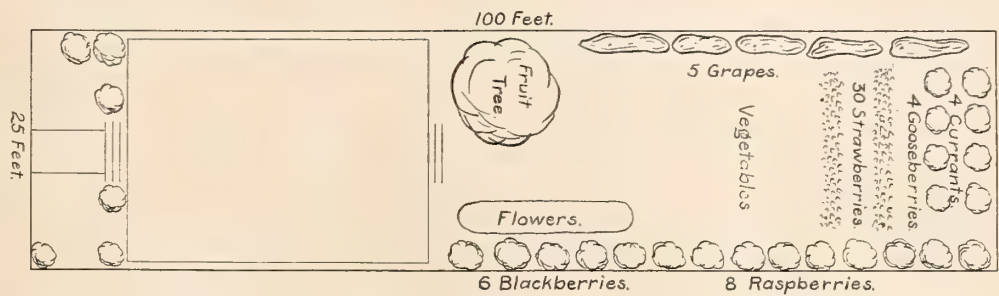
Unless one has an abundance of space, and money to spend upon appearance, it is not necessary to provide for walks or drives in the average fruit garden. Temporary walks which answer every purpose may be made between rows of trees, bushes, or vines.

DOUBLE PLANTING NOT USUALLY DESIRABLE

Double planting, the growing of more than one kind of fruit on the same land at the same time, is a common source of trouble. Often we see apples, with peaches between the rows, or currants with strawberries, etc. One objection to double planting is that different fruits require different treatment as regards tillage, pruning, etc., and it is an inconvenience in caring for them to have them mixed. Another and more serious objection to double planting, as usually practised, is that the several fruits, are crowded so that none have room to do their best. Usually the home fruit grower does not realize that when he plants several kinds of fruit thickly upon the same place, he is placing a heavy tax on the land and ought to fertilize much more heavily than he would for one crop only. Double planting should be practised only in the small city or suburban fruit gardens. When several fruits are crowded on the same area the amount of fruit produced and the degree of satisfaction derived would have been far greater if the owner had been content with fewer trees and had given each tree room to grow. We often see apple trees with pears between them, currants between the pears, and strawberries tucked in between the currants. This combination, and others of a similar nature are very unsatisfactory except in the few cases where the grower keeps the soil very rich and gives each fruit special attention.

WHEN TO TAKE OUT "FILLERS"

It is often desirable to plant the trees more thickly than they should stand after coming into full bearing, with the purpose of taking out some of the trees after they have borne a few crops. Thus peaches are often planted between apple trees, and pears; sometimes early bearing varieties of apple like Yellow Transparent and Wagener, are planted between the standard varieties. This plan of using "fillers" is all right if the peaches or early bearing apples are removed when the permanent trees need the space. But the majority of fruit growers will not do this; in most cases, the fillers are not cut out at all, and the orchard becomes a brush-pile in the



Suggestion for planting a city lot 25 x 100 feet. The grapes may be trained to the fence, or over an arbor

air from being so crowded. Ten or twelve years is as long as early bearing varieties of apple, used as fillers should remain. Peaches may stay between apples for six to ten years, depending on the strength of the soil and the distance apart of the trees. Blackberries and raspberries may stay between the tree fruits, especially apples and pears, for six to eight years. Strawberries, which require tillage and high culture generally, are not usually considered a detriment to young trees. They may stay between them for four to eight years.

HOW FAR APART TO PLANT

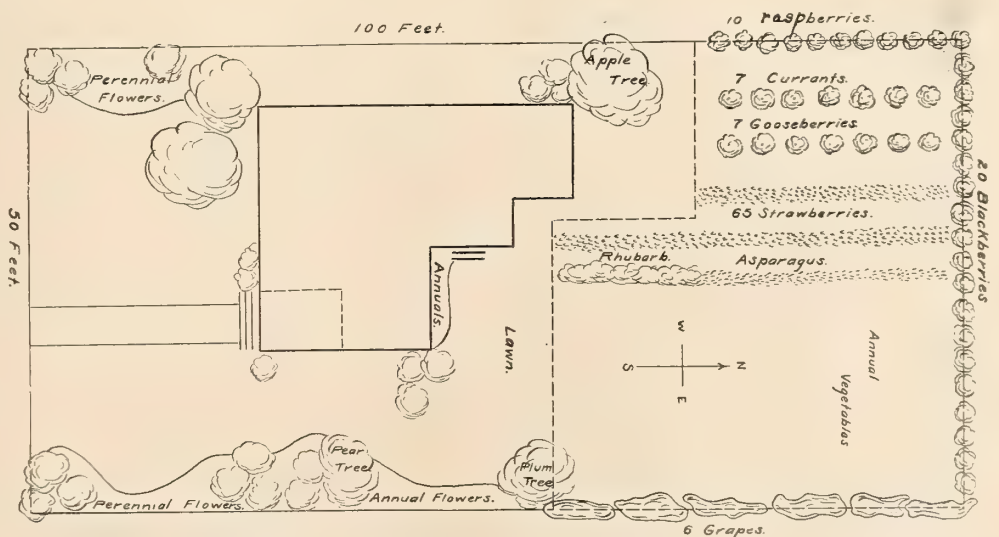
Both tree fruits and small fruits are commonly planted too close for the best results. This comes from a desire to get just as much as possible from the land, and a failure to look ahead and see how big the plants will be several years after planting. Very often one sees fruit trees planted ten or fifteen feet apart, when they ought to be thirty or forty feet apart. One tree that has room enough for a healthy growth of top and roots is more profitable than three half-starved trees occupying the same space. Choice fruit trees, free from blemish, cannot be grown in a crowded orchard.

The distance that should be given varies greatly in different localities and on different soils. Apples in one locality may be more crowded at thirty-five feet apart than the same variety would be at twenty-six feet apart in another place. On heavy soils, all fruits, especially orchard fruits, make a more vigorous growth than on light soils, and should

be given more room. This may make a difference of several feet. Again, some varieties are small growers. It would not pay, for example, to give an upright spare-growing variety like the Wagener apple, as much room as a spreading, luxuriant-growing variety, like the Northern Spy apple.

As a general guide, the following distances are suggested: Apples and sweet cherries, thirty to forty feet; pears, apricots, plums, peaches, and sour cherries, sixteen to twenty-four feet; quinces, sixteen feet; grapes, six by eight to eight by ten feet; currants and gooseberries, four by six to six by eight feet; raspberries, three by six to five by eight feet; blackberries, four by seven to six by nine feet; strawberries, one or one and a half by four feet. Dwarf apples or dwarf pears may be set at half the distance recommended for the standards.

The plans that accompany this article are not "model plans." There is a model plan for each fruit garden, but not for all fruit gardens, nor even for any considerable number of gardens. No fruit garden can be entirely successful if it is patterned after another, unless the conditions of climate, soil, personal tastes, and all the other factors that have been mentioned, are exactly identical. This can never be, so it is unavoidable that each man should make his own plan in accordance with his own peculiar circumstances. The accompanying plans are merely hints that some amateurs may find useful as a skeleton for their own plans, to be changed and modified in accordance with the principles of garden planning.



Suggestion for planting a lot 50 x 100 feet. The border of berries should be kept cultivated

Flowers Every Day from Christmas till Easter—By I. M. Angell New York

HOW SIX POTS OF BULBS PROVIDED FLOWERS WITHOUT INTERRUPTION FOR SIXTEEN WEEKS—
A CAREFULLY PLANNED SUCCESSION OF FLOWERS FROM BULBS POTTED IN OCTOBER

IT IS an easy matter to have continuous bloom from a few pots of bulbs if the right sorts are potted at the right time, and, more important yet, if they are brought into the light at the proper time. Some bulbs will respond to pushing for early bloom and others will not resent being held back for late bloom. Among the best sorts to force for extra early flowering are Chinese sacred lilies; Roman hyacinths; two polyanthus narcissi, Paper White and Double Roman. For slow forcing I can recommend crocus, tulip, Dutch hyacinth and three of the narcissus tribe, poeticus, Van Sion and Empress.

The six pots of bulbs that gave us uninterrupted bloom from Christmas to Easter were all started during the month of October. The expense for the bulbs was less than seventy-five cents, yet we had a supply of flowers for house and table decoration that continued for sixteen weeks, as is shown below:

Chinese lilies bloomed from	Dec. 23rd to Jan. 12th
Double Roman narcissus	“ Jan. 13th “ “ 25th
Grand Soleil d'Or narcissus	“ “ 22nd “ Feb. 13th
Crocus	from Feb. 7th to March 12th
Van Sion narcissus	“ March 7th to “ 25th
Princess Marianne tulip	“ “ 23rd to April 12th

From this it is seen that throughout the whole winter bloom was not missed for one day, even. This succession was managed by bringing the pots into the light at different times according to the needs of the case.

Bulbs that are held back and brought to the light late in the season will reach the blooming stage in a shorter time than the same sort brought to the light earlier in the season. Two or more bulbs of the same sort started in the same pot will make a much

better showing than bulbs of different kinds planted together.

Bulb	Potted	Brought to Light	Time before blooming
Chinese Lily	Oct. 30th	Nov. 13th	40 days
Double Roman narcissus	“ 19th	Dec. 19th	25 “
Grand Soleil d'Or narcissus	“ 5th	“ 7th	46 “
Crocus	“ 31st	Feb. 26th	43 “
Van Sion narcissus	“ 31st	Feb. 12th	23 “
Princess Marianne tulip	“ 31st	Mar. 1st	23 “

Chinese sacred lily.—Flowers white and yellow, an inch and a half across and six or seven to a stem. Each bulb sent up several stems. This opened the season with its first flower two days before Christmas and was in full bloom on New Year's Day. We always raise Chinese lilies in water, though they will thrive planted in earth. The dish containing them was about four inches in depth and the bulbs were surrounded with pebbles in such a way that the roots would not raise them too high above the water, which should reach half-way up the side of the bulb. The dish was set in a dark place for a few days to encourage root growth, but these bulbs take so prompt a start that the five to eight weeks of darkness prescribed for ordinary potted bulbs is impossible. From the start to the first bud was less than six weeks.

Grand Soleil d'Or narcissus.—Flowers bright yellow with a cup of darker shade, several flowers to a stem. This is a close relative of the Chinese lily, almost a counterpart, except in color. Ours proved to be a satisfactory house plant.

Crocus.—Colors yellow, white, purple, streaked and striped in great variety. These are great favorites with us, both outdoors and in. They are inexpensive and the corms are so small that a dozen can be planted in an ordinary flower pot and they make more show than many of the larger kinds. The only unsatisfactory qualities exhibited were a tendency to mold if kept too damp and a faculty for attracting the aphid. The latter can be fought by applications of tobacco dust or tea.

The time elapsed between the taking of the two photographs, one on the day the pot was brought up from the cellar, and the other at the height of bloom was just two months. Over forty flowers were sent up from a dozen corms, costing ten cents. They were allowed eight weeks in the cellar to make roots. When they had been in the light for three weeks the leaves and buds were breaking through the sheath. The season of bloom lasted over a month. Under ordinary conditions the foliage is short, but through a mistake this pot was left in a subdued light too long after leaving the cellar and the leaves were drawn.

Crocus bulbs should be carefully chosen; the first size, which ought to measure four inches around, will yield, under favorable circumstances, from six to one dozen flowers each.

Van Sion narcissus.—Color rich yellow large, very double flower. This is one of the most desirable for forcing, both because it is unusually handsome and because it attains so good a size and quality when grown as an ordinary house plant. One month from the time the pot was taken from the cellar, it was in full bloom. It was kept in the cellar over three months, but the result was a vigorous root growth that sent up strong foliage and flowers. The roots were so aggressive that they lifted the soil too high in the pot. This could have been forestalled by leaving the soil loose instead of packing it. The plants continued to bloom over two weeks.

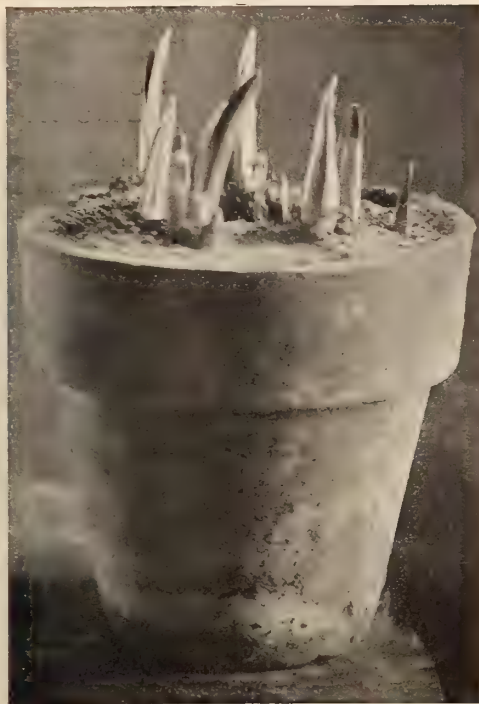
Princess Marianne Tulips.—White with touches of pink. Most tulips are not always a success in our window garden, but the Princess Marianne never fails us. The flower is uncommonly large, measuring six inches across when fully expanded. Tulips (like all other bulbs) must have a good root system before being brought to the light. A good mixture of soil for the potting is two-thirds good garden loam and one-third very old cow manure, with enough sand to make the mixture loose in texture. Stiff garden soil can be lightened with leaf mold. The bulbs must be so set that the tip just shows, and the soil should be well settled in the pots but not pressed too solidly, or the expanding roots will lift the bulbs out of position. Three or four tulips can be accommodated in a 5-inch pot. Before the pots are put away so that the bulbs may make roots the soil should be well moistened. Place in a cool dark situation,



Roman hyacinth. The easiest bulb to force. Will bloom in ten weeks from potting. Flowers white



The Chinese sacred lily, grown in pebbles and water. Potted October 30th, in flower December 23rd



Van Sion narcissus three months after potting and after a week's exposure to light



In full bloom three weeks later. The first flower opened on March 7th

either outdoors with a thick covering of litter or in a cellar. The bulbs require five weeks or longer to make roots and as they cannot do this in frozen ground, precautions are taken against freezing. When the pots are crowded with roots, they are ready to be brought from the cellar. For the first few days after removal place them in a moist atmosphere and a cool temperature. Tulips enjoy free watering but not overwatering, and their flowers are sensitive to direct sunlight striking them through the glass.

Well rooted early Duc Van Thol tulips make very satisfactory pot plants, as do many of the other early sorts. Some of the early single sorts can be raised in water, like hya-

cinths, if perfect bulbs are chosen. A good tulip bulb can be told by the reddish color of the skin, which is the result of its being grown in a proper sandy soil.

THE ESSENTIAL DETAILS

The same general directions for potting and after care are equally applicable to the other bulbs commonly grown in the house. Other points are these: Avoid fresh manure; if well-rotted cow manure is not to be had, use bone meal in the proportion of one part to fifty of soil. Manure water added when the plants are in bud will greatly improve the flowers. Always take the strongest bulbs for house bloom. They lose vitality if kept long out of the ground, so the best way is to pot them all at the same time, and let the succession depend on bringing them to the light at different times. Single bulbs, in small pots are apt to suffer from varying temperatures and different degrees of moisture; so the best way is to plant several of a kind in a large pot. The Cyclopaedia of American Horticulture gives the following guide for temperatures as the best suited for the different stages of growth:

For roots	40	degrees
For stems and foliage.....	50	"
For best flowers.....	60	"
For quick development.....	70	"

To determine whether the roots have filled the pots turn out the ball of earth. Of course this cannot be done if the earth is dry, but if the soil is kept moist enough not to dry out and yet not wet enough to mold, it will be an easy matter to keep track of the root growth. It takes four or five days in subdued light for the foliage to turn from white to green. To prevent the opening of the flowers before the stems have reached the right length, the pots can be kept from the full sunlight still longer. For this intermediate stage we have constructed a home-made bulb table, with three shelves, one a little above the level of the floor, one on the same height as the window sill and one between. When the foliage has turned green the bulbs are brought to the light and warmth of a sunny window on the top shelf, the lower shelves meanwhile accommodating several relays of later bulbs. Hot dry air is likely to blast the tender buds, and draughts and dust must be avoided. Narcissus buds may be cut when only partially open, as they will come to perfection if placed in water.

BULBS FOR THE CHRISTMAS HOLIDAYS

For Christmas flowers we have made use of three of the polyanthus narcissus tribe, the Chinese sacred lily, Double Roman and the large flowering Paper White, so popular with the florists. On three successive years the sacred lily opened its first flowers Christmas week, when started between the first and middle of November. In each case they were in full flower on New Year's Day.

For full bloom at Christmas, start the bulbs the third week in October. We potted some on October 12th which reached their height of bloom exactly two months later, on December 12th, too early for Christmas decoration.

Double Roman narcissus is like the Chinese lily in appearance, except that the flowers are double. It needs starting earlier. Some that we potted on September 30th and brought to the light the middle of November, were in bloom a few days before Christmas. On the other hand one started November 1st was too late for the holidays, as the flower bud was only an inch high at Christmas time. The Paper White narcissus has somewhat the shape of the sacred lily, but both cup and petals are pure white and the flower larger. There are sometimes ten flowers to a stem. Ours was in bloom for Christmas; it was potted Sept. 30th and brought to the light the middle of November.

Some other bulbs which may be grown to secure flowers during this same period but which need different treatment are freesias and oxalis. To secure the best flowers the bulbs should be planted in late August or early September but the freesia does not deteriorate so rapidly as the other bulbs so that in the window garden one can secure a good succession of them by successive plantings until February 1st. If all the bulbs are planted in September put the pots out of doors until frost threatens when they must be brought into a cool but light place and stored until wanted for forcing.



Crocus bulbs after being eight weeks in the cellar. Potted October 31st, in flower February 7th



The crocuses lasted in bloom for two months. Forty flowers from a dozen corms

Raising Your Own Evergreens—By John Dunbar Rochester, New York

AN INTERESTING WINTER DIVERSION FOR THE AMATEUR WITH A SMALL GREENHOUSE—GROWING YEWS, CYPRESSES, AND ARBORVITÆS FROM HARDWOOD CUTTINGS TAKEN FROM OCTOBER TO DECEMBER—A CURE FOR “DAMPING OFF”

THE mere fact that you have raised your own plants from their earliest stages invests them with a very special interest in later years. Perhaps the propagation of the coniferous evergreens requires more care and constant watchfulness than any other branch of the work, and as a matter of dollars and cents plant propagation may not be worth while, as a rule. Indeed, the average person can buy young plants from the nurserymen for less than it would cost him to raise them. But to the gardener there is a fascination in the mere work of propagating plants. Con-

cidious trees was described in the September GARDEN MAGAZINE, pages 67 and 68.

Evergreens are propagated by three methods: seeds, grafting, and cuttings. The raising of evergreens from seeds in the open air in this country is a difficult process, owing to our scorching summer sun, and the liability of prolonged drouths. The late Robert Douglas of Waukegan, Illinois, was the first nurseryman who succeeded in reproducing the natural conditions, and he raised seedling evergreens in large quantities. They can be raised without much difficulty in the more equable temperature of Britain, France and Holland, and millions of seedlings are annually imported from these countries by American nurserymen. Seedlings of choice evergreens are occasionally raised by American propagators in limited quantities in shaded coldframes, or in seed flats in a cool greenhouse where humidity and temperature can be controlled.

Our showy varieties of garden evergreens such as the weeping, blue, silver and golden forms of spruces, firs, and pines, are usually perpetuated by veneer grafting, which is performed in the greenhouse in winter. Some of the large nursery firms in this country have given this up entirely of late because they find it much cheaper to import the young plants from Europe.

Large numbers of evergreens are raised annually in this country from cuttings, and there is a considerable number of species and many varieties that can be raised profitably in this way. The Japanese retinisporas, Nootka Sound cypress, most of the yews, arborvitæ, and junipers, can be raised successfully from cuttings.

GREEN AND HARDWOOD CUTTINGS

Green cuttings of these, from three to six inches long, are sometimes taken in July, and struck in sand in a coldframe. The better method is to take cuttings of the mature wood, anytime from the end of October to the end of December; and in most cases, the small lateral side shoots from four to seven inches long, with a “heel” make cuttings that are almost sure to root. In some instances, though, the cutting with a heel may be too long to handle conveniently; in such cases cut close to a joint. The terminal shoot of a branch cannot have a heel so it must be cut to a joint. It will root, but not as easily as a side cutting with a heel.

In preparing the cuttings for insertion in the cutting boxes, the lower leaves are removed from above the base of the cutting for two or three inches, the distance depending upon the size of the cutting. Use a knife with a sharp razor edge. All cuts must be clean and smooth; mutilation or bungling cannot be tolerated.

The cuttings are placed in boxes or “flats” 16 x 20 inches and 4 inches deep, with $\frac{1}{2}$ -inch holes in the bottom to permit perfect drain-

age. Such a box will hold from 180 to 270 cuttings, according to their size. The boxes may be modified to any size, but we have this size because they fit the benches without waste space. Broken potsherds are placed over the holes, which are again covered with a sprinkling of moss, and the box filled to within one-quarter of an inch of the top with sharp, clean, gritty sand which has been selected with great care. The cuttings are firmly dibbled in rows across the box, just touching each other, and the entire portion that has been cleared



Rooted cuttings ten months old. Beginning at the right, trailing savin (*Juniperus Sabina*, var. *procumbens*), Tamarisk savin (*J. Sabina*, var. *tamariscifolia*) and Canadian yew (*Taxus Canadensis*)

stant vigilance is called for, to have good results, which makes it all the more interesting.

A knowledge of the proper method of increasing a stock of any plant is useful if by any chance it is desired to multiply a rare plant, or one that has fond associations. A method that answers for handling most de-



Cuttings as they are taken from the plant. Reading from left to right: Nootka cypress (*Chamaecyparis Nutkaensis*); Sawara cypress (*C. visifera*); Savin (*Juniperus Sabina*); Japanese yew (*Taxus cuspidata*)



The cuttings shown above, after the lower limbs and branches have been removed



Removing the lower leaves from a cutting of the Japanese yew (*Taxus cuspidata*) before putting into the sand where it will “strike” or make roots



Taking off a side shoot of the Japanese yew, making a cutting with a “heel”



A yew cutting with the lower leaves nearly removed. Use a knife with a razor-like edge

of leaves is put below the surface of the sand.

MUST HAVE A GREENHOUSE

A low-roofed greenhouse, where an even, cool temperature, from forty to forty-five degrees can be maintained, is important. We board up the front of the benches, and the fire heat, when there is any, is confined beneath the benches, so that a cool temperature is easily maintained overhead. The cuttings seldom require heavy watering, but frequent syringings are necessary. For six weeks or two months the cuttings are partly shaded from direct sunshine. Some growers place lath sun shades—the laths about one and a half inches apart—on the roof. We use muslin covered frames, which are held in place on the roof inside by cleats. On dull days the screens are removed.

In twenty to twenty-five days most of the cuttings will show signs of callusing, that is, the inner bark at the base of the cutting will granulate and swell and cover the whole base with a new tissue, the process being complete

in from two to three months. When that takes place the temperature can be raised, and the screens gradually removed to encourage the spreading of roots.

HOT SAND FOR "DAMPING OFF"

If too much dampness is allowed in the house, from a lack of proper circulation of air, the dreaded "damping off" fungus will make its appearance. I find the best remedy is sand baked over a fire until it is almost hot, and spread over the areas where the mould is appearing. It will almost invariably check the disease.

TIME FOR ROOTING

By the month of April a large number of the cuttings will have rooted, particularly the arborvitæ and the common juniper. It is surprising though, how long a time some evergreens will remain with a healthy callus and no roots. I have seen the cuttings of Nootka Sound and Lawson's cypresses remain in this condition for one year without rooting, and sometimes a number of them do not root at all! When an evergreen forms a callus, it is not evidence that it will root.

About the end of April the boxes can be removed from the greenhouse and placed in coldframes, with sashes over them, and for a



The whole length of the cleaned stem is pushed into the sand, and the cuttings are packed as closely as possible to callus and root



A cutting ready for the flat. Note the heel of old wood at the base

short time a little shade; gradually harden them off.

Some evergreens that root easily, like many varieties of the arborvitæ, can be taken out of the boxes and placed in beds six feet wide, the rows ten inches apart, and five or six inches between the plants. Some growers however put them thickly in the nursery rows at once, using a horse-cultivator between the rows, and transplanting the second year.

The Canadian and most of the other yews, a number of junipers, and the Japanese retinispors root slowly, so it is best to keep them in the boxes in a shaded position throughout the summer. We keep them in a sunny position with lath shades over them. Close attention must be given to watering. Late in the fall or early winter I put the boxes in sunken coldframes, and give a light cover of leaves; the following spring they are planted out in the nursery. The frames require to be closely watched during the winter for mice. If they gain entrance to the frames, and are left undisturbed, they will seriously mutilate the evergreens.

Bulbs that Bloom Outdoors in March—By Thomas McAdam, New Jersey

A DOZEN FAVORITES THAT WILL FLOWER IN THE NORTH OUTDOORS IN MARCH WITHOUT ANY PROTECTION OTHER THAN A WINTER COVERING OF LEAVES OR LITTER—THE DAINTIEST MESSENGERS OF SPRING

THERE is no denying that for people who want their money's worth, the best spring blooming bulbs are tulips, daffodils, and hyacinths, simply because they have the largest flowers. One admires and even loves these showy flowers of April and May, but do they ever take hold of one's heart, like the baby fingers of the snowdrop—that sweet emblem of purity which is the first frail flower to escape the clutch of winter? Or the azure scilla springing up amid the first grass, to remind us of the new life and blueness in the sky? Or the gay, childlike crocuses playing in the lawn—the first unmistakable smile of awakening spring?

There are about a dozen of these messengers of spring that can ordinarily be

counted on for March flowers in the North. The first of them, in the language of Maeterlinck, are "frail and chilly, but bright-faced as a bold idea." They have sacrificed much for earliness—size, fragrance and variety in color, but their delicate grace and unconquerable hardiness strikes us all with fresh admiration every year. Who taught these fragile blossoms to brave the snow? How have they managed to survive the long, grim process of evolution? One fancies that they must be as dear to Nature's heart as to our own. Is not this peculiar combination of child-like helplessness and immortal courage the secret of their universal appeal?

The loveliest snowdrops I ever knew still grow in a deserted village in Michigan that

bears the high-sounding name of Gibraltar. The blessed memory of the old ship-builder who once supported there a flourishing community is kept green by the trees that arch protectingly over the staunch old house, and by the countless thousands of snowdrops that carpet the ground beneath them. Every five years the gracious housewife used to dig up and divide her snowdrops (as everyone should), but for twenty years now they have multiplied until the bulbs touch one another. Every member of that household who has gone forth to found a new family has reverently transported, with his Lares and Penates, some of the bulbs, so rich in home association. It is just such a sacred, intimate spot in which everyone should plant snow.



The best hardy blue flower of March; the Siberian squill (*Scilla Sibirica*)

drops, for they prefer to ripen their bulbs in a moist, partially shaded position, while most other bulbs solidify best in dry soil baked by the summer sun.

The earliest snowdrops, however, are those which get every bit of sunshine there is in March. It hardly seems credible that a tree's bare branches should cast enough shade to delay a flower bed a week, yet it is a fact.

The snowdrop is one of the very few flowers that will do even tolerably well on the north side of a house, in a dark, narrow passage-way, where only ferns could be expected to live.

It must be confessed that the glory of the genus is the giant snowdrop (*Galanthus Elwesii*). Its greater size of flower is not associated with any loss of refinement. But it never thrills like the first flower of spring. It is a belated herald, appearing a fortnight or so after its little brother has brought the news.

Another white flower with green tips that is often mistakenly called a snowdrop, is its relative, the spring snowflake (*Leucojum vernum*). This is practically the same as the kind pictured on this page, except that the spring snowflake blooms in March, while the summer snowflake flowers about the first of May. (There is also an autumn snowflake, which has red tips instead of green, but it is not generally considered hardy.) Although the snowflakes have larger blossoms than the snowdrops, they are not so much celebrated by the poets, doubtless because they bloom later.

The distinction between snowflakes and snowdrops is a pretty one. The snowflake is the simpler flower, its bell being composed of six white petals (or more correctly, perianth segments) with green tips, all of which are of the same size and shape. The snowdrop, on the other hand, seems to consist of three white petals and a greenish inner tube with six lobes. A closer look, however, shows that this loose tube is composed of the three un-

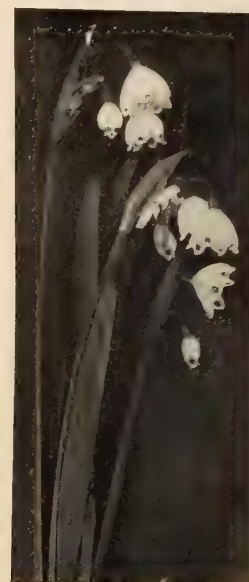
joined inner segments of the perianth, which are narrower than the petals, and daintily marked around the two-lobed apex with what Rosetti calls a "heart-shaped seal of green." Ordinarily, green is an abnormal and unpleasant color among flowers, but in the snow-drop it is most precious.

There are earlier blue flowers than the Siberian scilla, and even showier ones, but on the whole, this is the best of the season.

The blossom is perhaps no more than half an inch across, and there are only one to three flowers on a stem, but it is the purity and depth of its blue that goes straight to the heart. The two-leaved squill (*Scilla bifolia*) is earlier, and has a graceful spray bearing three to eight flowers, but I have never seen it free from the purple taint—except in catalogues.

Three flowers known to the catalogues by the seductive but somewhat "too previous" name of "glory-of-the-snow" surpass the Siberian scilla in size. The largest is *Chionodoxa grandiflora*, or *gigantea*, with solitary blossoms an inch and three-quarters across, but they are slaty blue. The next largest is *C. Luciliae*, with flowers an inch across, and of a genuine sky blue, but the lower half of every petal is white, so that the effect is not single. *C. Sardensis* has flowers only half an inch across, but there are six or seven on a stalk, and the color is nearly sky blue, though not as deep as that of *Scilla Sibirica*. They are altogether lovely flowers, but in my judgment they are fanciers' flowers, while the Siberian scilla is a flower for the people. I shall never be happy until every lawn contains a few dozens of them. Your friends will tread on some of them, but they are so cheap that it is no matter.

The best hardy blue winter flower of English gardens is the Grecian anemone (*Anemone blanda*). There is a lovely colored plate in Mrs. Waterfield's "Garden Colour" which shows a wood carpeted with myriads of these starry flowers before the trees show any sign of returning life. They match the color of the sky more closely than most of the so-called blue anemones. It is to be hoped that some wealthy American will try to create one of these charming pictures by planting a few thousand bulbs this autumn. The English plant them in rocky, heavy soil, under deciduous trees, and those facing west are said to bloom two or three weeks earlier than those facing east, sometimes beginning in January. The blossoms close in bad weather, and a bed will retain its beauty for several weeks. It seeds freely in England, and fortunately the



A late flowering snowflake (*Leucojum aestivum*)



The giant snowdrop (*Galanthus Elwesii*), the largest flowered species. "Who taught these fragile blossoms to brave the snow? How have they managed to survive the long, grim process of evolution?"



IT COSTS ONLY FIVE DOLLARS TO PRODUCE THIS EFFECT!

Poet's narcissus naturalized. Blooms in May. Plant as directed on page 113 and you need never touch them again, until bulbs crowd.



The most delightful way to plant crocuses—scatter them in the lawn. They are not as permanent as in the garden, but mixed bulbs cost only forty cents a hundred

bulbs are sufficiently rounded to enable them to stand transportation fairly well, whereas the flat-bulbed anemones, e. g., coronaria and Apennina are sadly weakened by a long period above ground.

The latest of the March heralds are the crocuses, but they have the largest flowers, and the gayest colors. In many a neighborhood there is a good deal of friendly rivalry as to who shall have the first crocus, and with the ordinary varieties it is simply a question of cultural skill. But there are certain species of crocus that can be counted on with a fair degree of certainty for February bloom, and some of these will even open in January, if the season be favorable.

Probably the earliest crocus you can rely upon is the imperial crocus (*C. Imperati*), a lilac and buff flower that ought to bloom with the first snowdrops. The earliest yellow seems to be Cloth of Gold, a variety of *C. Susianus*. The earliest lilac markings are said to come in the white flowers of the Scotch crocus (*C. biflorus*) and the earliest purple is *C. Sieberi*. If *Crocus Sieberi* costs more than you can afford, perhaps Emperor, a purple variety of *C. vernus* will be early enough to beat your neighbors. I hope that someone will try all the earliest crocuses, and write a "Little Monograph" of them for THE GARDEN MAGAZINE.

Do not be discouraged if you fail to find these species in the best American catalogues. Our dealers often keep more kinds than they

list, and even if they do not have them, there is time for them to get them for you, if you write before October 1st. You must expect to pay more for earliness, but the earliest kinds are said to have shorter flower-tubes than the common crocuses, and therefore are less liable to be damaged by inclement weather.

Every year a certain well-beloved bulb catalogue used to stir my curiosity with this laconic entry: "*Bulbocodium vernum*. Blooms a week before the crocus." One year I bought it and beat my neighbors. For practical purposes it is an early pink crocus, though botanically it belongs to the lily family, while the crocus is of the iris family, the chief distinction being that the ovary is

generally below the calyx in the lily family, and free from the calyx in the iris family. I have never cared to grow the *Bulbocodium* again, partly because it is rather expensive in quantity, but chiefly because the rare species of crocus above mentioned ought to prove much earlier than the *bulbocodium*.

I have never seen a clear explanation of the different species of crocus, but if I understand it, we get our best yellow varieties from the Dutch crocus (*C. Masiacus*) while the lilac, purple and white varieties are chiefly derived from *C. vernus*, which is the most important species.

The most delightful way to grow crocuses is to scatter them in the lawn. If you have never done this, take my advice, and get a thousand mixed crocus bulbs for about three dollars and plant them with the aid of a dibber, which will leave no unsightly holes in the lawn. A still better plan, if you can afford it, is to buy named varieties and use an English bulb planter, which extracts a neat core of sod each time and replaces one the next. One reason why crocuses look so charming in the grass is that they have a green setting, while those in the garden have to come out of the bare earth. The only drawback to this method is that the number of flowers is diminished every year, especially if you use the lawn mower before the leaves have a chance to yellow and decay, which shows that the bulb is ripening well. But even if a third of them disappear every season, it pays to plant



Try the rare crocuses mentioned on this page and beat your neighbors by three weeks!

a few hundred every year. With the bulbs costing only half a cent each, in quantity, there is really no excuse for not trying this plan. But don't plant the bulbs in straight lines, as some do!

If you want better flowers, larger masses, and more lasting results, you must raise crocuses in beds of deep rich sandy loam. In that case it will pay to dig up the crocuses in midsummer the first two years, in order to destroy all diseased and weak corms, as they are highly susceptible to fungous diseases. When the perfection of the new bulb shows that the crocuses are at home, there is no need of disturbing them until they crowd one another so much as to deteriorate, which may be in three or four years. The corms tend to rise out of the ground because new ones form on top of the old. Therefore, in garden culture, they would better be planted three inches deep, though some cultivators advise

only one or two inches, asserting that more crocuses fail to bloom by reason of deep planting than from any other cause.

The only hardy yellow flower of March I know of, beside the crocus, is the winter aconite (*Eranthis hyemalis*). It has larger flowers than a crocus, and sometimes blooms as early as January. It belongs to the buttercup family, and has from five to eight golden petals, or rather sepals, for such the petal-like parts are supposed to be, as in many other members of the Ranunculaceæ. The plant grows about six inches high, and each stem has one palmately cut leaf directly under the solitary flower. There are also similar basal leaves which expand later.

The winter aconite is one of those flowers mentioned in every book on gardening, but rarely seen in real life in America. Although it has run wild in a few places here, it is probably not adapted as well to our climate

as to that of its European home. The standard advice is to naturalize it under deciduous trees, as it is supposed not to like full sunshine while ripening its bulbs. Yet I saw such a spot at Tuxedo last spring where only half a dozen plants had struggled through the ground from the five hundred bulbs planted during the previous autumn. It is to be hoped that someone who has both failed and succeeded with the winter aconite will give us the benefit of his experience. Mere unclouded success rarely enlightens.

PLANTING TABLE FOR MARCH-BLOOMING BULBS

	Depth (inches)	Distance apart (inches)
Snowdrop, common	2	2
" giant	3	4
Glory-of-the-snow	2-3	1-2
Scillas	3	4
Winter aconite	1	4
Crocuses	1-3	2-4
Grecian windflower	1-2	4
Spring snowflake	2-3	4

Growing Mushrooms on a Ping-Pong Table—By Louise Shaw New Jersey

FOUR MONTHS' SUPPLY OF THIS TABLE DELICACY RAISED IN AN ORDINARY HOUSE CELLAR—THE AMATEUR'S OPPORTUNITY TO HAVE MUSHROOMS FROM CHRISTMAS TO EASTER BY BEGINNING NOW

FOR years we dreamed of raising mushrooms in the cellar, but last autumn the enterprising member of the family said we were really going to do it. Many and, it must be confessed, conflicting accounts of how to begin were read, but the general directions finally followed were those given in Farmer's Bulletin No. 204, from the Department of Agriculture.

A room that could either be shut off from the rest of the cellar or opened to admit the heat of the furnace was chosen for the experiment (a mushroom cellar must be kept steadily at 55 degrees). For the bed itself we adopted the simple expedient of setting up an old ping-pong table and boarding up the sides about fifteen inches. This gave us a bed of forty-five square feet at much less cost than the customary shelves around the wall.

From a livery stable nearby we bought for three dollars enough fresh horse manure to make twelve wheelbarrow loads after the coarsest straw had been taken out. The manure must be fresh; it is useless for mushroom growing after it has lost its heat. The manure was put under a covered shed where the rain could not reach it, and during the next ten days it was turned seven times—every day at first and later every other day. The purpose of turning the manure is to keep it from burning while the first violent decomposition takes place; when that is over, and there is no longer danger of a sour fermentation setting in, it is safe to use the material for making the beds. This condition is not supposed to be reached inside of two or three weeks, but in our case the manure seemed to be in right condition in a little over a week, possibly on account of the frequent turning.

On the tenth day (November 17th) the bed was made by pounding down the manure layer by layer until the whole twelve wheelbarrow loads were packed to a depth of not more than ten inches, and the bed was so solid that a vigorous thrust was needed to drive in our beautiful new brass-pointed thermometer.

WATCHING THE TEMPERATURE

It took only a day or two for the temperature of the bed to rise to 96°F. Then it began to drop gradually. In ten or eleven days the bed had reached the right temperature to spawn—70 to 75 degrees—and here we met the first reverse: The spawn was so delayed in delivery that by the time it reached us the temperature of the bed had fallen to 56 degrees. It was brought up to 68° again by covering the bed a foot deep with salt hay and sprinkling with warm water about a week



This bed was made up November 17th; spawned December 7th; and cased on the 14th. The first mushrooms appeared above the surface of the bed February 7th, at which time the mulch of salt hay was removed. To secure mushrooms for Christmas spawn the bed before October 15th

after spawning. Of course this would not be necessary, ordinarily.

SPAWNING THE BED

We used the pure culture spawn; two dollars' worth is enough for fifty square feet of bed. The directions for spawning are to make holes in the manure a few inches deep and a foot apart with a pointed stick, to put a piece of spawn the size of an egg in each hole, and to press the manure together over it. This procedure was followed carefully; but from last year's experience we have decided to make the holes closer and put less spawn in them, when making another bed. We hope thus to distribute the mushrooms more evenly over the surface of the bed. After spawning the room was darkened by hanging rugs over the windows, but we have never been able to find out whether mushrooms really prefer the dark or not.

AN EARLY RUN

About two weeks after spawning one is supposed to examine the bed to see if there

same as the room itself, and refused to rise again, in spite of two further sprinklings with warm water. Great was our triumph, therefore, when one day, exactly two months after putting in the spawn, we discovered masses of tiny mushrooms no bigger than pinheads scattered irregularly over the bed. A few days later, February 11th, we gathered our first crop, a quarter of a pound; and from then to June 14th, when the bed was cleared out, we gathered forty-eight and a half pounds—a good result for a first attempt, as any yield over half a pound to the square foot is looked upon as a success by commercial growers.

All the little pinheads that first appear do not grow into big mushrooms—only a few mature—and the later mushrooms are much bigger, one to two inches in diameter, when they push through the soil. The pinhead stage is only the first manifestation; or it may even have been peculiar to our bed.

We made one serious mistake that caused the bed to yield poorly for a few weeks. In all directions for mushroom culture repeated

this incident will show that too little water is also a danger and that small tough mushrooms are the result. The watering, of course, should be done after gathering the mushrooms, and always with a sprinkler; in that way it does no harm to the young mushrooms remaining in the bed.

FLAVOR AND SIZE

We have come to the conclusion that the flavor of the mushroom is at its best after the "veil" has broken, but before the edges of the cap are rolled up. "Buttons" and very old mushrooms have comparatively little taste and the size of the mushroom seems to have nothing to do with the flavor, the little ones being as good as the big quarter-pound ones. There is no choice, either, between the white-capped and the brown-capped varieties in this matter, but the brown ones have the advantage of growing a trifle larger before the "veil" breaks. The white one is the prettier.

Great care must be taken in gathering mushrooms not to pull out a great many little ones with the big ones, as they generally come in thick clusters. The best way is to take the cap firmly in the fingers of the right hand and twist out the mushroom, at the same time pressing the soil down on either side of the stem with the first and second fingers of the left hand. In this way the others are not disturbed and the whole stem of the mushroom comes out—an important point, as stubs left in the ground are said often to rot and cause trouble. As soon as a mushroom is gathered the lower part of the stem should be cut off, so that there may be no danger of soil falling into the gills when it is laid down. If at the same time the cap is brushed off with a soft cloth all necessity of washing the mushroom will be done away with, and the loss of much of its flavor consequently avoided. We know this from eating both washed and unwashed mushrooms.

COOKING TO RETAIN FLAVOR

There are many ways of cooking mushrooms, but the two simplest—broiled and sauté—are the best, as they interfere the least with the mushroom's own flavor. In any case cut off the stem close to the gills and peel the cap from the edge to the crown. If they are to be broiled, have the fire low and lay them on an open oyster broiler, gills down for a few minutes at first. Then turn them with a fork—it crushes them too much to close the broiler on them—sprinkle a very little salt on them, and just before they are tender lay a little piece of butter in the centre of each one, where it will melt and run through the gills. Serve them on toast, not buttered, as buttered toast has too much taste of its own. To sauté them, put them in a sauce pan with a little butter—no water—and cook them, under a cover, from a half to three quarters of an hour *over boiling water*. A beautiful brown juice cooks out of them to moisten the toast. Some people add a little cream at the last moment, but we thought them better without it. The most important thing is to serve them very hot. For this reason it is nice to do them at the table in a chafing dish.



For best flavor gather the mushrooms just after the veil has broken. The specimen on the left is in prime condition. If older than shown on the right flavor will be lacking

are fine white threads in the manure around the lumps of spawn. This means that the spawn is "running," and it is time to "case" the bed. As we lacked patience to wait two weeks we scratched up a little corner at the end of one week. The spawn seemed to be "running" all right, so we "cased" the bed without further delay. "Casing" means spreading a layer of good soil, free from stones and hard lumps, over the surface about one to one and a half inches thick. And then we settled down to a long wait.

MUSHROOMS IN TWO MONTHS

Mushrooms are said to appear in from four to fourteen weeks, and because of the low temperature at which we spawned the bed we were prepared for the worst. The temperature sank slowly from 68° to 50°, the

warnings are given not to make the bed too wet: if it must have water give only a light sprinkling. So when our mushrooms suddenly began to be very small and very tough, and failed to improve under the "light sprinkling" advised, we were at a loss to know the trouble. We could get no enlightenment from any of our literature on the subject, and being without experience could not decide whether they were rotting from too much water or drying up from too little. At last, to settle the matter even at the risk of ruining the bed, we gave it a good soaking with four gallons of tepid water. In a few days we saw mushrooms appearing once more and such splendid big ones that there could be no doubt that we had chosen the right course. Though writers on mushroom culture are right in warning against the too free use of water;

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<i>Chrysolora</i> . Bright yellow; fine cup; for bedding	25	1 25	9 50
<i>Duchess of Parma</i> . Orange-red, bordered yellow	25	1 35	10 00
<i>L'Immaculee</i> . Pure White	20	1 10	8 00
<i>Pottebakker White</i> . Pure White; large flower	30	1 75	15 00
<i>Scarlet</i> . Bright scarlet	35	2 00	17 00
<i>Princess Marianne</i> . Rose white; extra large	25	1 25	10 00
<i>Proserpine</i> . Rich carmine-rose fine forcer	50	3 50	30 00
<i>Queen Victoria</i> (La Reine). White, shaded rose, very fine	25	1 25	10 00
<i>Yellow Prince</i> . Pure yellow; best for pots	25	1 30	11 00

DOUBLE VARIETIES

	Doz.	100	1,000
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<i>La Candeur</i> . Best double white for bedding	40	1 75	14 00
<i>Murillo</i> . Light Rose	50	2 50	21 00
<i>Tournesol Red and Yellow</i>	50	2 25	18 00
<i>Yellow</i>	50	2 75	10 00

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	Doz.	100	1,000
<i>Bouton d'Or</i> . Deep Golden Yellow	\$0 30	\$1 40	\$12 00
<i>Gesneriana</i> . Brilliant crimson scarlet	75	1 75	15 00
<i>Isabella</i> . Primrose flushed rose	40	1 50	15 00
<i>Darwin</i> . Mixed colors	30	2 00	15 00
<i>Parrot</i> . Mixed colors	30	1 50	13 50

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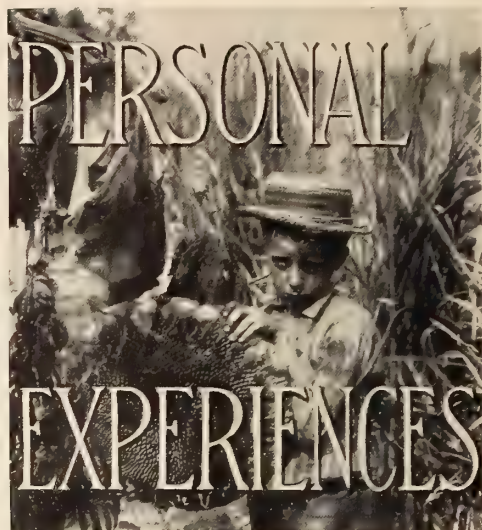
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Tomato Varieties for Succession

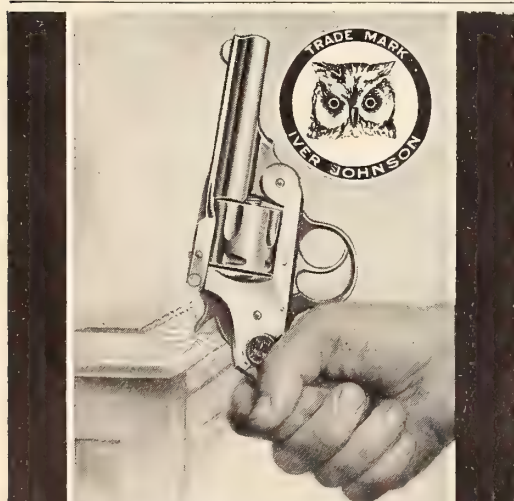
I HAVE read the article on Quality Tomatoes in the September GARDEN MAGAZINE with a great deal of pleasure, and feel that it admirably states the main case, but I would offer these suggestions as to varieties:

The Trucker's Favorite and Stone tomatoes are large-fruited, late or main crop sorts, but if you were to plant say Lorillard or Chalk's Early Jewel, you would have bright scarlet tomatoes of fine flavor, solid flesh, uniform shape, and more nearly the desirable size indicated in the article. With these kinds you should have ripe fruits two or three weeks earlier than with the Stone or Trucker's Favorite. For purple or pink fruited sorts, the Acme, Earliest Pink, and the new June Pink will give much earlier fruits than the Trucker's Favorite. The Acme is a smooth and regular fruit, very sweet-flavored.

I agree entirely with the advice to support the plants on stakes, for the fruits will then ripen earlier, and will be of finer flavor and appearance than when the vines are allowed to spread over the ground. With me an early sort will not produce good fruit continuously throughout the season, and a second lot of seed is planted in June, if a supply of the finest fruits is desired for fall use.

At the end of the bearing season the strength of the early plants is exhausted, and the later fruits will be inferior in size, form, and quality. Of course you avoid this to a certain extent in selecting a variety like Stone, but do so at the expense of your season of fruiting.

With us the red tomatoes in good varieties do not have an acid flavor until the nights become cool, this flavor being largely a matter of temperature, as instanced by the acid flavor of red tomatoes early in the spring and during the fall months. I have always considered the glass house tomato the highest development in point of quality, but when in California last fall, I found the tomatoes there of all kinds much sweeter and finer in flavor than any that I had ever tasted under any circumstances—and I am exceptionally fond of tomatoes. The acid flavor of the canned tomatoes of the grocery trade is, I



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Every Ambitious Young Man

Should read the article in the September issue of *Everybody's Magazine*, on Thrift

By DR. ORISON SWETT MARDEN, Editor of *Success*

This is just an excerpt on

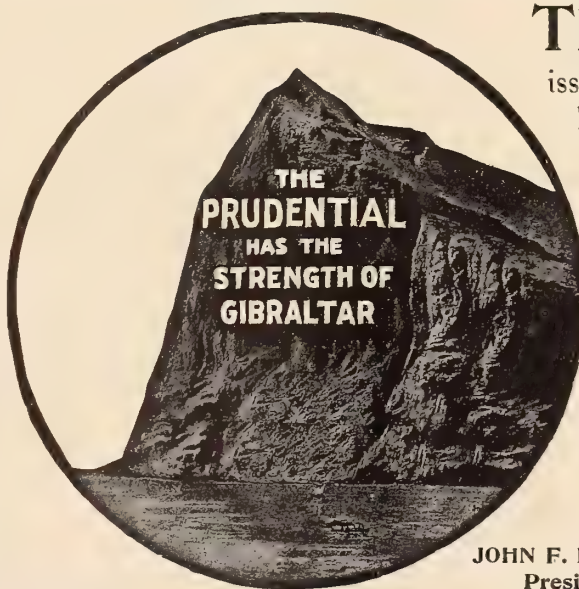
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think, very largely due to the fact that the canneries do not begin to put up the fruit until about September, at which time the cool nights are generally due. Near New York City, and further north, the warm summer season is of shorter duration, and the cool nights more prevalent—consequently, the red tomatoes are more distinctly acid, and the pink or purple fruited sorts will have much the best flavor, and are not liable to crack, except in very wet weather.

The yellow tomatoes, of which I consider the Golden Queen or Golden Sunrise the finest sorts, are sweet, but decidedly insipid.

Personally, I think the addition of sugar in cooking tomatoes for the table destroys the flavor of the fruit to a considerable extent, and for this reason we add a small portion of bi-carbonate of soda, for frying (with cream, country style) which counteracts the acidity, and prevents the gravy (the most essential part of the dish with the children) from curdling.

It is quite difficult to really confine one's self to the limits of a magazine, as subjects like this are apt to run away with an enthusiastic gardener.

Doylestown, Pa. E. D. DARLINGTON.

Ripening Green Tomatoes

TOMATOES will not stand frost, and late in the fall there are often a great many green fruits still left on the vines. These can be ripened in many ways. Spade up a piece of ground in a warm and sheltered corner. Pull up the plants with the fruit on. Spread them on the ground, and cover with straw, leaves or burlap. Here the fruits will ripen beautifully. Another way is to turn a dry goods box into a ripening house. Put in sliding shelves that can easily be shoved in and out to enable you to examine the tomatoes, and a close-fitting door. Keep a warm, moist atmosphere in the box and the fruits will ripen well without the sun. Be careful that no rotting fruits are allowed to remain in the box, as they will spoil the good ones.

New York.

E. M. BARRON.

Important October Work

CLEAN up the vegetable garden, burn diseased plants, plow under all the manure you can get, and leave the ground rough all winter, as advised by Prof. Sander-son, in the August GARDEN MAGAZINE, page 40, and page 82 of the September issue.

Before October 15th divide and rearrange perennials in the hardy border.

A fortnight after the killing frosts, or when sufficiently ripened, dig up all tender bulbs, e. g., cannas, gladioli, dahlias, tuberose, caladiums. Dry thoroughly, shake off dirt, and store for winter.

Cut off all the old stalks of the asparagus bed, and burn them. Some people give the ground a mulching of manure at this time, but others do not, as it introduces too many weed seeds. Warm, well drained, sandy soil suits asparagus best.

Give the rhubarb roots a good heavy mulching of well decayed manure—a foot deep. They are gross feeders.



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The Feeling of Security which one of these pumps insures to its owner will alone repay him many times its cost, while the other advantages of owning a Hot-Air Pump are as varied as the many uses to which water is daily put—from the morning bath to sprinkling the lawn and garden. It does away entirely with the slow and expensive process of conveying water by hand.

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HOME-MADE CONTRIVANCES

Making Cuttings and Sowing Seeds in Fall

DURING the past year I have derived much pleasure and a profitable experience in the use of two coldframes. One frame is 3 x 6 ft. and has a second-hand sash for which I paid one dollar. In this



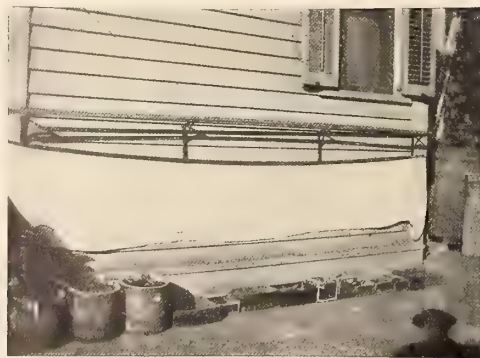
This screen gave young plants protection from the late frosts and shade from the hot sun

I planted seed of coreopsis, foxglove, pansy and the cardinal flower; also cuttings of phlox, Boston ivy, deutzia, roses, wistaria, hibiscus, snow-ball and althæa.

The phlox cuttings were made from the side shoots of a flowering head and from the main stems, most of the leaves being removed or trimmed. We were more successful with the cuttings from the side shoots. The cuttings of the other plants were six inches long, the bottom cut being just below a bud, the leaves removed or trimmed and planted with one bud above ground.

On the approach of severe weather the frame was filled with leaves which were covered with newspapers, the sash was put on and when the ground froze boards were placed over the sash.

The other frame is 2 x 6 ft. You might



Hundreds of plants were started in boxes under this twenty-cent cheesecloth screen

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A bed 6 feet in diameter requires 156 bulbs, planted 5 inches apart each way, and this number in the best bedding varieties can be bought for \$2.75 to \$3.25, according to variety. Details of bed and full lists of sorts and prices, as well as a complete list of other bulbs, such as Hyacinths, Narcissus, Crocus, Lilies, etc., also Hardy Garden Plants, Seasonable Flower and Vegetable Seeds, is given in

DREER'S Autumn Catalogue

Free on application to all who mention this magazine

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That depends on the spirit back of it

A MULE by any other name would kick as high, A ROSE by any other name would smell as sweet

The name **ROSEDALE NURSERIES** suggests to old customers
Business Integrity - Prompt Service - Fair Prices

To prove to new customers the value of the name and to celebrate the fiftieth anniversary of the proprietor, we are offering bargains in all departments. Catalogue gives sizes and prices.

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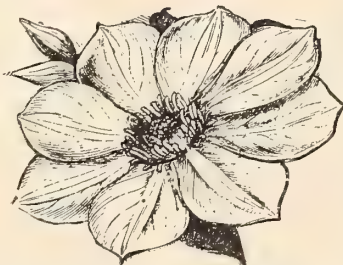
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Strong, healthy plants from selected stock of choicest fruiting varieties sure to give satisfaction and
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We also have a full line of Fruits and Ornamental Trees, Plants, Vines, etc., for Fall Planting.
We do Landscape Gardening in all its branches. Catalogue Free

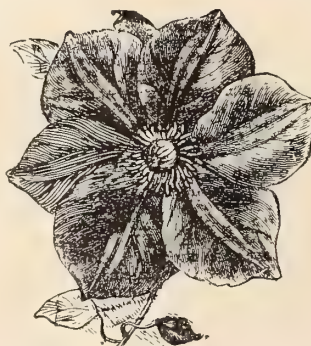
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The most gorgeous flowering vine for porch and trellis. It will festoon the veranda with a profusion of large white, red or purple flowers.

We can supply fine 2-year-old, strong, heavy field-grown roots which will blossom next August.



VARIETIES: Henryii (white);
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Strong field grown plants.
BABY RAMBLER ROSES, 35c. each, \$1.50 per doz. by mail.
Send for description of this charming new hardy Rose.

Send for catalogue.

H. S. WILEY & SON, Drawer 47, CAYUGA, N. Y.

call it a box; it has no sash. In October this was filled with small candy and cigar boxes in which were planted the following kinds of seeds: sweet peas, phlox, forget-me-not, foxglove, salvia, pansy, oriental poppy, single and Allegheny hollyhocks and nasturtium. These seeds were protected in the



Hardwood cuttings of vines and shrubs made now and planted in a frame will grow next summer

same manner as the contents of the other frame, except that the frame was not covered with a sash.

CHEESE-CLOTH COVERS IN SPRING

The boards were removed March 6th, and the leaves March 24th. After the leaves were removed a cover of cheese-cloth was fitted to the frame as a protection from frost and as a shade from the sun. Most of the seeds were making a good showing when the boards were removed. The salvias were very slow in appearing and the phloxes and nasturtiums failed to grow. The sweet



In this coldframe seeds of hardy annuals were sown in boxes for the earliest spring flowers

peas were planted in deep cigar boxes. When we transplanted them they had roots six inches long.

The seedlings in the larger frame came through in good condition. We have thriving plants of phlox, Boston ivy, deutzia and roses which were grown from the cuttings. The other cuttings were not a success.

In April I was obliged to remove one cold-frame but made a cheap and effective substitute. The boxes containing the seedlings were placed on the concrete walk close to the house and a piece of cheese-cloth one yard wide and five yards long was procured. One edge of this cloth was fastened to a narrow strip of wood, and rings were fastened to the other edge, at intervals, with which to hang the cloth on hooks screwed into the house. This screen protected the plants from late frosts and shaded them from the



Dutch Bulbs From the Grower Direct to the Planter.

We have just received from our nurseries at Sussenheim, Holland, a supply of the very best bulbs of every description—all suitable for forcing.

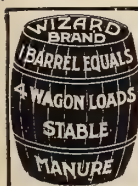
HYACINTHS, TULIPS, NARCISSUS, CROCUS, ETC.

We also import from France Roman Hyacinths, Paperwhite Narcissus, Grandiflora, and Freesia—also suitable for forcing.

Our stock is complete, although some varieties we have in limited quantity. We sell none but absolutely the best quality bulbs. Order early while we still have full stock.

Catalogue Sent Upon Request.

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Kiln dried and pulverized. No weeds or bad odors. Helps nature hustle. For garden, lawn, trees, shrubs, fruits and house plants.

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Delivered to your Freight Station.

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15 ROSES

FROM 3-INCH POTS

For \$1.00 By Mail
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These are fine strong plants that have been in bloom for two months. Your selection of the following varieties:

Marie Van Houtte, Bon Silene, Bride, Bessie Brown, Helen Gambier, Pink Cochet, White Cochet, Yellow Cochet, White La France, Pink La France, Striped La France, Red Mad. Abel Chateau, Countess Eva, Stahremburg, Madam Vatre, Pernet's Triumph, Safrano, Maréchal Neil, Bridesmaid, Catherine Mermet, Golden Gate, Etoile de Lyon, Ivory, La Princesse Vera, Helen Gould, Gen. Jacqueminot, Paul Neyron, Vick's Caprice, Glorie Lyonnaise, Henry Martin, Marquis Querhouet, Climbing Bridesmaid.

This offer holds good only to Jan. 1st, 1907

Get our catalogue of all BULBS and two-year-old Roses for fall planting.

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Tulips, Hyacinths, Narcissus, Crocus, Jonquils, Ixias, Sparaxis, Chinese Sacred Lilies, etc.
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We import from the best Holland growers and guarantee choice bulbs.

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INCREDIBLE as it seems, considering the range of his work, Kipling has again touched high-water mark in an entirely new kind of story. By his magic the reader sees pass before him knights and robbers and pirates in some of the most exciting events in old English history—"though it shall have happened three thousand years." A more fascinating book, especially for young readers, would be hard to imagine.

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Traffics and Discoveries. \$1.50

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The Day's Work. \$1.50

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THE GARDEN
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sun, preventing the quick drying of the soil. In some respects this was better than glass as there was no danger of burning the plants in case they were forgotten. On cloudy days the cloth was raised. In this improvised coldframe costing twenty cents I started hundreds of plants.

Rhode Island.

H. H. PEPPER.



The Californian's Reminder

OCTOBER is the best month for planting bulbs of all kinds for next spring's flowers, such as anemone, hyacinth, ixia, narcissus, ranunculus, sparaxis, and tulips. In planting any of these, it will be found best to drop a little sharp sand in the hole before filling in with soil. This method will often prevent rot, in case the soil is kept too wet.

It is also just the time to sow hardy annuals and perennials for bedding plants, and for propagating carnations by cuttings.

Transplant pansies and stocks to the garden.

During October, vegetable growers should be busy, planting: Beans, cabbage, cauliflower, carrot, lettuce, onions, parsnip, peas, radish, spinach, and turnip.

Los Angeles. ERNEST BRAUNTON.



"Dwarf Fruit Trees." By F. A. Waugh. Orange Judd Company, New York, 1906; pp. 125. Price, 50 cents.

For the amateur who has a limited amount of room and who wishes to make the best of it he can undoubtedly get as much satisfaction out of a few of these small trees as any other form of gardening. This little book is a complete manual on the art of growing dwarf fruit trees. It fills a long-felt want as the only other book in the English language on the subject. Rivers' "The Miniature Fruit Garden," an English publication which did not fully meet the conditions in this country, is out of print. This book should be in the hands of every amateur gardener.



KELLER'S GRACEFUL COLUMBINES

Hardy Garden Flowers No. 9

FOR untold centuries the Old World Columbine has been a well-beloved favorite in every old-fashioned garden. During its time of bloom it reigns supreme in the hardy border. It has double and even triple varieties and sometimes one will find four cornucopias, one inside the other.

It is a singular fact that all foreign species have short spurs with rounded horns. It is reserved for the Western American species to show those extraordinarily long, straight spurs which are the wonder of the botanist and the joy of the gardener. Of these, the best is the incomparable yellow Columbine, *Aquilegia Chrysantha*, with spurs two inches long or more.

The most remarkable advance has lately been made in hybrids of this species. They now range from pure white through pink to the dark reds and even—mirabile dictu—several shades of blue. We want you to see for yourself what progress has been made in these remarkable hybrids and the lovely new white-flowered variety of that interesting Japanese species *A. Flabellata*. Why not try the whole collection offered below:

A. CANADENSIS—Flowers scarlet and yellow. \$2.00 per dozen; \$15.00 per hundred.

A. CERULEA—(Rocky Mountain Columbine)—Flowers large, blue and white, with long spurs. \$2.00 per dozen; \$15.00 per hundred.

A. FLABELLATA—A pure white variety, with silvery white foliage. \$2.00 per dozen; \$15.00 per hundred.

A. CHRYSANTHA—Flowers golden yellow, long spurs. \$2.00 per dozen; \$15.00 per hundred.

A. GLANDULOSA—Flowers a shade of blue and white, 10 inches high, extremely pretty: \$2.50 per dozen; \$18.00 per hundred.

A. SKINNERI—Flowers scarlet with greenish tips; \$2.00 per dozen; \$15.00 per hundred.

A. VULGARIS—(Old Fashioned Columbine)—Flowers double and single, in all colors, \$1.50 per dozen; \$10.00 per hundred.

Plant your hardy garden this Fall. It will be much more satisfactory, as the flowers will get an earlier start in Spring before Spring planted stock is established.

We grow hardy perennials exclusively, devoting all our energy and thought to their culture. This is why we have one of the finest collections in America. Let us help you with your hardy garden by suggesting selections and arrangements. Write, anyway, for our beautiful Fall catalogue just from the press.

J. B. KELLER SONS, Rochester, New York

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GUARANTEE AS TO PURITY,
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MADE IN THE SAME CAREFUL MANNER
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The Greenhouse Question and What Our Catalog Is

We believe that a goodly number of Garden Magazine readers are planning to some day have a greenhouse "all their own"—not necessarily an elaborate affair with numerous compartments, requiring a gardener, etc., but a compact, attractive, "right near the house" garden of glass, where you can while away many delightful hours, bringing their reward in unmatched flowers and adding those delicious "home grown" vegetables to your table.

For such as these we have prepared a catalog that shows forth in a really interesting way just what the U-Bar is, why it makes the lightest, cheeriest, most attractive and enduring house. We have illustrated it freely, and one of the best of printers has printed it, and now it's done in book form, ready for you, and mailed at your request.

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U-BAR GREENHOUSES

Metropolitan Building, 4th Ave. and 23rd St.
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BODDINGTON'S BRILLIANT TULIPS



Although there are hundreds of varieties of Tulips, comprising innumerable colors, shades and combinations of markings and all adapted for garden planting, yet for brilliant bedding effects the solid brilliant colors are usually preferred, especially for design bedding. For this reason we give below a list of the varieties usually chosen for such purposes, that can be sold sufficiently low to enable them to be used in quantity.

SINGLE RED TULIPS

	PER DOZ.	100
Artus. 2D Bright red, fine flower; dwarf	\$.25	\$1.75
Belle Alliance. 2M. Scarlet	.40	2.75
Crimson King. 2M. Crimson	.25	1.75
Pottebakker, Scarlet. 1M. Scarlet	.30	2.25
Cramoie Brilliant. 2M. Vermilion Scarlet	.35	2.50

SINGLE PINK TULIPS

Cottage Maid. 2M. Carmine-pink, white feather	.25	1.75
Rosa Mundi Huyckman. 2M. Pink and White	.25	1.50
Rose Gris de Lin. 2M. Rose-pink and blush	.25	1.75

SINGLE YELLOW TULIPS

Canary Bird. 1M. Rich golden yellow	.25	1.50
Chrysolora. 2M. Pure yellow, large	.25	1.40
Mon Tresor. 2M. Grand and large, deep yellow	.35	2.00
Pottebakker, Yellow. 1M. Yellow, faintly veined red	.35	2.00
Yellow Prince. 2M. Yellow, large and showy	.20	1.25

SINGLE WHITE TULIPS

La Reine (Queen Victoria). 2M. White and blush	.20	1.25
L'Immaculee. 2M. Pure white	.20	1.25
Pottebakker, White. 1M. Large white	.35	2.00

SINGLE VARIOUS-COLORED TULIPS

Duchesse de Parma. 2T. Reddish orange, large flower	.20	1.25
Keiserskroon. 2T. Crimson, edged yellow	.35	2.50
Wouverman. 2M. Blueish Claret	.35	2.50

DOUBLE VARIETIES

Alba Maxima. 1D. Fine early double white	.25	1.50
Gloria Solis. 1M. Golden with crimson center	.25	1.75
Imperator Rubrorum. 1M. Large early double scarlet	.50	3.50
La Candeur. 2M. Double White	.25	1.75
Murillo. 1M. Blush shaded rose	.50	3.00
Rex Rubrorum. 2M. Crimson-scarlet	.35	2.00
Tournesol, Red and Yellow. 1D. Scarlet, with yellow tips	.35	2.50
Tournesol, Yellow. 1D. Yellow, shaded orange	.50	3.50

The figures following the varieties indicate earliness in flowering: No. 1 being the earliest; No. 2 following. The height is indicated by "D" for dwarf, "M" for medium, and "T" for tall. About 6 inches apart each way—or about 36 bulbs to the square yard—is a suitable distance for planting Tulips.

REMEMBER, BODDINGTON'S BULBS BLOOM!

Our distinctive, instructive and suggestive Fall Bulb Catalogue, containing a most comprehensive collection of Fall Bulbs with full descriptions and cultural directions, and illustrated with nearly 100 full page and other photo-engravings from life, mailed free if you mention this advertisement.

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We offer for immediate delivery the largest and choicest collection of hardy lilies in the United States and our handsomely illustrated Bulb Catalogue for 1906.

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Plant now FOR A MASS OF BLOOM
NEXT SPRING AND SUMMER

Our catalogue tells what you wish to know.

We have a fine stock of all the best Phlox, Larkspurs, Foxglove, Iris, Pæonies and Hollyhocks.

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M. M. DAWSON, Manager

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Book on Household health sent free, if you mention the name of your Plumber.

What Your Closet Should Be TO BE SAFE

Book on Household Health sent free, if you mention the name of your Plumber.

A closet should be first of all, free from the odors caused by imperfect cleansing, or shallow water seal, permitting escape of sewer gas. It should be of perfect construction, and not of material subject to rust, corrosion, under-surface discoloration, or cracked and chipped surface enamel, such as porcelain enameled iron.

If your closet shows any one of the faults mentioned, you are exposed to a direct and dangerous menace to health. If examination or past experience shows your closet to be defective, replace it with the perfect sanitation embodied in

Sy-CLO
TRADE MARK

The Closet of Health

Unlike the ordinary closet, the "Sy-CLO" has a double cleansing action, a combination of flush from above and a powerful pump like pull from below. The downward rush of water creates a vacuum into which the entire contents of the bowl is drawn with irresistible syphonic force.

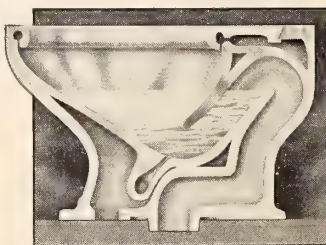
The material of the Sy-CLO Closet is heavy white china, hand moulded into a single piece without joint or seam; its surface cannot chip off nor crack, and is unaffected by acid, water or wear.

The name "Sy-CLO" on a closet guarantees that it is made under the direction and supervision of the Potteries Selling Company, of the best materials, and with the aid of the best engineering skill, and has the united endorsement of eighteen of the leading potteries of America.

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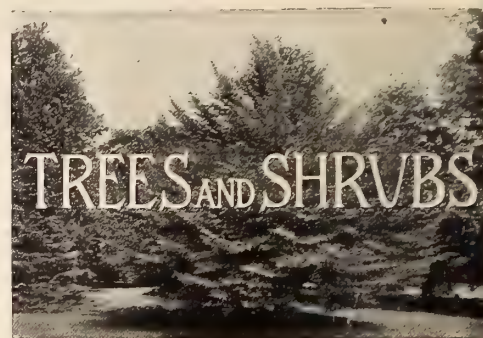
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Blix. \$1.25

Moran of the Lady Letty. \$1.00

Published by
DOUBLEDAY, PAGE & COMPANY



Purchasers' Guide to Barberries

(The species are described on pages 122 to 124 in about the order in which they are numbered below).

- A. Plants deciduous
 - B. Color of fruits bright scarlet
 - C. Fruits scattered singly or in twos 1. Thunbergi
 - CC. Fruits many in a cluster (usually a dozen)
 - D. Flowers in pendulous racemes 2. vulgaris
 - DD. Flowers in upright or nodding racemes 3. Amurensis
 - CCC. Fruits few in a cluster 4. Canadensis
 - BB. Color of fruits dark, dull red
 - C. Branches arching: bark brown: fl. clusters pendulous 5. Sinensis
 - CC. Branches upright: bark gray: fl. clusters upright 6. emarginata
 - BBB. Color of fruits purplish red 7. Sibirica
 - BBBB. Color of fruits yellow, violet, black or purplish black. 8. vulgaris, var. lutea, violacea, nigra and Fischeri
- AA. Plants evergreen (half evergreen in *B. ilicifolia* and *Neuberti*)
 - B. Leaves compound (each leaf composed of several leaflets): fruits blue (bluish black in *B. Japonica*)
 - C. Stalk of whole leaf long and prominent
 - D. Height 3-6 ft.: leaflets 5-9 9. Aquifolium
 - DD. Height 1 foot: lfts. 3-7 10. repens
 - CC. Stalk of whole leaf short or almost none
 - D. Height 5-10 ft.: lfts. 9-13 11. Japonica
 - DD. Height 2-3 ft.: lfts. 5-17 12. pinnata
 - BB. Leaves simple, i. e. not compound
 - C. Margin of leaves, coarsely toothed and spiny
 - D. Color of fruits red 13. Neuberti
 - DD. Color of fruits dark purple
 - E. Height 4-5 ft.: lvs. 1½ in. long 14. ilicifolia
 - EE. Height 1-3 ft.: lvs. ½-1 in. long 15. Darwini
 - CC. Margin of lvs. entire (rarely with a few spiny teeth)
 - D. Lvs. about as wide as box. 16. buxifolia
 - DD. Lvs. extremely narrow. 17. stenophylla

THE CULTURE OF BARBERRIES

The evergreen kinds are best planted in spring, but the deciduous sorts may be planted with equal advantage in either fall or spring.

Nearly all the species of barberries are easily raised from seed. Sow as soon as ripe, in "flats," or broadcast in beds of light, sandy soil. Seeds will germinate freely the next year.

None of the barberries, to my knowledge, will strike from hardwood cuttings, but cuttings of the green wood, taken in the summer time, and placed in five or six inches of sand

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Let me show you at *my own expense* how sweet-toned, well-built and attractive are Lindenberg Pianos. I have placed "Lindenberg" Pianos in some of the *best homes* in every part of the United States and can possibly refer you to some satisfied customer near your own home.

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PAUL LINDBERGER, Mgr.
The Columbus Piano Company, Makers of Pianos
488 North High St., Columbus, Ohio.



Style 11—Mission Design—\$265.

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TULIPS, HYACINTHS and NARCISSUS

And other bulbs in great variety and unexcelled quality for both outdoor and indoor planting. Your garden and conservatory are not complete without them. You will miss one of the greatest pleasures of the Fall if you fail to grow bulbs indoors for Christmas and Easter flowering.

See Our New Autumn Catalogue.

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Air Drying Studebaker Lumber
55,000,000 ft. Covering 70 Acres

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This carriage plant could be run for six years without buying another stick of lumber. This means that in Studebaker vehicles not an inch of wood is used until it has reached its perfect seasoning. Perfect seasoning means air-drying, many woods requiring at least five years to mature.

Most manufacturers, unwilling to tie up capital, buy their lumber from season to season, kiln-dry it and use it at once. Yet every wood worker knows that the kiln has yet to be invented which can take the sap from wood without taking its vitality too.

The Studebaker yards, of slowly seasoning wood, representing millions of tied-up capital, is the most vivid illustration possible of this firm's determination to produce vehicles of reliability and quality.

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The Studebaker Cabriolet

The Cabriolet is the favorite conveyance for Autumn driving both in city and country. It is the present day adaptation of the late English Queen's favorite carriage—the Victoria-Phaeton. The Cabriolet however reveals a great advance in artistic and practical design over its predecessor. Distinct from the finished elegance of the Studebaker Cabriolet, is to be noted its luxurious riding qualities, arising from the scientific balancing of the carriage body upon a superb set of springs.

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The finest HARDY Lily grown must be planted **NOW** in open ground.

Flowers in June, pure white, with golden stamen, 5-20 flowers to the stem. Grow anywhere.



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1st Size	\$.10	\$.85	\$5.00
Extra Large Bulbs	.15	1.00	6.50
Mammoth Bulbs	.20	1.50	8.00

Dozen and hundred at buyer's expense by express.

For Xmas Flowers in the house.

Lilium Harrisii, the white Trumpet Lily, must be planted now in pots.

Fine Bulbs each postpaid, 10cts. Dozen \$1.00. Hundred \$6.00.
By express, buyer's expense.

See September "Gardening" for our \$1.00
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Send for our 25th Annual Fall Catalogue, giving full list of

Hyacinths, Tulips, Narcissus, Lilies, Iris, Peonies, etc., with cultural directions.

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USED FROM OCEAN TO OCEAN FOR 23 YEARS.

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The best natural fertilizer, free from straw, and perfectly clean. The ideal material for making manure water, it is so easily soluble. Invaluable as a top dressing for exhausted beds and benches. Mix some with your compost heap for a rich, mellow potting soil next spring.

10 lbs. . . . \$0.35 100 lbs. . . . \$1.50
50 " . . . 1.00 Per ton . . . 25.00

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Box N.

MOORESTOWN, N. J.

on the top of a hotbed, and shaded from the sun by cotton screens placed three or four feet above the frames, and the frames kept close, will root freely. This method of propagation, however, is necessary only in the case of distinct varieties, which it is desirable to perpetuate without variation. A large percentage of the purple barberry comes true from seed, and it can be raised more cheaply from seed than from cuttings.

Barberries require but little pruning to keep them healthy and shapely. In the winter time a little thinning out of old wood, or spindly and congested branches, and the shortening back of any branches that may have extended too far beyond the general symmetry of the bushes, is all that is necessary.

With recent discoveries in China there are considerably over one hundred known species. Many of them are tender, however, and will not endure our winters.

New York.

JOHN DUNBAR.

Making Leaf Mold

WHEN the foliage is falling, late in September or early in October, is the best time to lay in a stock of next year's leafmold. Leafmold added to the potting soil makes it much more friable, increases its water-holding capacity, eases the circulation of air through it, and induces a better growth of roots. It has no actual fertilizing value. In raising from seed such plants as cyclamens, cinerarias, Chinese primroses, and begonias, it is a necessity.

If there is no hard wood timber land nearby, where you can get clean leaves, then rake up the leaves which have fallen in the street. Maple leaves are best, but those of the elm and the oak will do. Last fall I made an arrangement with the city employees who were cleaning the streets, to dump in my backyard all the leaves they wished to. In this way and at no cost I got enough to make a two years' supply of leafmold.

In the winter, use the leaves for banking up coldframes and pits, to keep out the frost. In the spring, when the pits are empty, I throw all the leaves into a pit, wet them thoroughly, and allow them to rot. By fall they are in good condition to use. If this way of rotting them is followed, you will probably need to wet them several times during the summer. Another good way to handle the leaves is to dig as large a hole in the ground as you can fill with leaves. Pack the leaves in as tightly as possible, wetting them as they are being thrown in.

If neither of these ways can be followed, the leaves can be put in a heap on the ground, thoroughly moistened, and tramped down. When treated thus, it will be necessary to water them oftener, because the pile presents more surface from which the moisture can evaporate. Turn the heap of leaves occasionally, and in two years the leafmold will be in usable condition.

Never bury leaves in your garden where you intend to grow plants next year. The heat caused by the fermentation will injure the roots of the growing plants.

New York.

PHINEAS NOLTE.

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With Johnson's Prepared Wax

"A Complete Finish and Polish for All Wood"

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For Furniture, Woodwork and Floors

It produces a beautiful, lasting and sanitary finish and polish to which dirt and dust will not adhere. It will not show scratches, blister, peel off or crack. It cleans, polishes and preserves the wood and brings out its natural beauty. Fine for linoleum, oilcloth and leather. Johnson's Prepared Wax is sold by all dealers in paint—Universal size 1 1-2 oz., 10c; Household size 4 oz., 25c; 1 and 2 lb. cans, 60c per pound; 4, 5 and 8 lb. cans, 50c per pound. Write for above book. Remember it is our regular 25c edition sent FREE for limited time. Mention edition GM10.

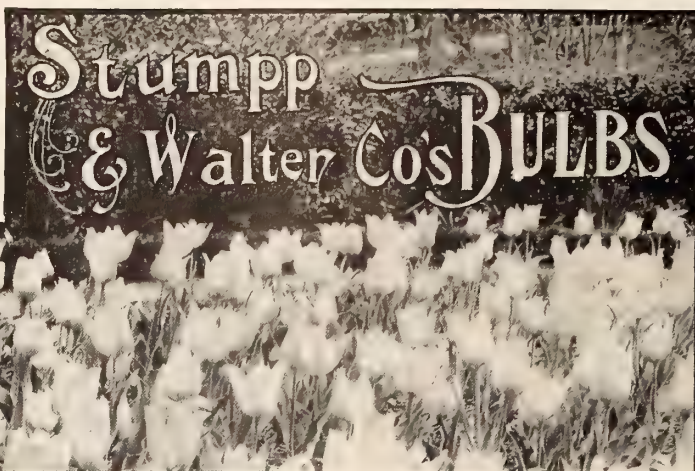


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S. C. JOHNSON & SON, Racine, Wis.

"The Wood-Finishing Authorities"

12 Best Tulips
12 Best Hyacinths
12 Best Daffodils
12 Best Crocuses



AMONG many hundreds of varieties of these beautiful flowering bulbs (all having some merit), the amateur is lost in bewildering confusion when he attempts to select the few really best kinds for the home gardener. Therefore we have made the following selections of twelve. No need for you to pore over pages and pages of the stereotyped catalogue descriptions. Take our selections and our assurance that you are getting the most desirable, selected by an expert. Our bulbs are selected, first size, and are of the very finest quality imported.

TWELVE BEST VARIETIES OF

TULIPS

	doz.	100
Belle Alliance, fiery scarlet	\$0.50	\$3.00
Canary Bird, bright yellow	.30	2.00
Cottage Maid, white-edged rose	.30	2.00
Duchess de Parma, red and yellow	.30	1.75
Joost van Vondel, cherry red	.30	2.00
Keizerskroon, deep crimson, yellow border	.30	2.00
La Reine, white, tinted rose	.25	1.75
L'Immaculee, pure white, yellow base	.20	1.50
Prosperpine, rich, silky rose	.50	3.50
Rembrandt, rich crimson	.30	2.50
Rose Luisanthe, extra large, rose color	.60	4.00
Thomas Moore, orange, sweet scented	.35	2.50

1 each above 12 varieties, 50c.; 12 each above 12 varieties, 144 bulbs, \$4.00.

TWELVE BEST VARIETIES OF

HYACINTHS

	doz.	100
Gertrude, rosy pink	\$1.00	\$8.00
Moreno, dark pink	1.00	8.00
Rosea Maxima, clear rose	1.50	10.00
Roi des Belges, bright red	1.25	9.00
Blanchard, pure white	1.00	8.00
L'Innocence, pure white, large bells	1.50	10.00
Baroness van Thuyll, snow white	1.25	9.00
Voltaire, clear, waxy white	1.00	8.00
Grand Maitre, ultramarine blue	1.00	8.00
Queen of the Blues, porcelain blue	1.25	9.00
Lord Derby, light porcelain blue	1.25	9.00
King of the Blues, rich, dark blue	1.00	8.00

1 each above 12 varieties, \$1.50; 12 each above 12 varieties, 144 bulbs in all, \$12.50.
Hyacinths in the best mixed under color: per doz., 75c.; per 100, \$5.00.

TWELVE BEST VARIETIES OF

NARCISSUS

	doz.	100
Poeticus, single white	\$0.20	\$1.00
Emperor, single yellow trumpet	1.00	7.00
Empress, single yellow and white	1.00	7.00
Golden Spur, single yellow trumpet	.90	6.00
Henry Irving, frilled yellow trumpet	.90	6.00
Horsfieldii, very large, pure white	.90	6.00
Sir Watkin, light yellow, large	.90	6.00
Single Jonquil, single yellow	.15	.75
Van Sion, double yellow (Daffodil)	.50	3.00
Paper White, single white clusters	.40	2.00
Soliel d'Or, single yellow clusters	.40	3.00
Orange Phoenix, double orange and white	.40	3.00

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CROCUS

In the 12 Best Named Varieties

20c. per doz. 80c. per 100 \$6.00 per 1000

A Few Specialties

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Snowdrops, single	\$0.15	\$0.75
Snowdrops, double	.25	1.50
Freesia, Jumbo bulbs	.50	3.00
Lilium Candidum, mammoth	1.50	10.00
Roman Hyacinths, mammoth	.75	5.00

We import a complete variety of all flowering bulbs. Before ordering your Fall supply, send for our illustrated bulb catalogue, mailed on request.

STUMPP & WALTER CO.

50 Barclay Street, New York City

The Fall Care of Lawns

SEPTEMBER is the time in which to do the most effectual and lasting work on the lawn. The past summer has been unusually favorable to the growth of grass. In spite of this there is an abundance of crab grass. This is the most pestiferous weed that ever grew on a lawn. Besides this there are plantains, dandelions, docks, and many creeping weeds that mar the beauty of the sward.

The only method of destroying the deep rooting weeds, such as the dandelion and dock, is to dig them up with a weeding gouge or spud, taking care to go deep so that the plant may have no chance to grow again. This work is simple, requiring only time and patience. Crab grass, the worst enemy of the lawn, presents a more difficult problem as it is an annual—the plant makes its growth, matures its seed, and dies all in one season. Therefore if the seeds are not destroyed before they ripen a new crop will be already sown for next season. The seeds germinate during the warm days of June, and by August the plant may be found in greater or less quantity on almost every lawn, its broad, pale green leaves making it very conspicuous. Toward the end of August its long stems, creeping closely to the ground, have crowded out and to a large extent killed the good grass. At the first approach of cold the crab grass assumes a bronze color, darkening as the cold increases until the first frosts, when it is killed, leaving unsightly brown patches upon the lawn.

There is only one method of eradication, and it is expensive and laborious. When the grass has thrown out its creeping stalks they must be pulled to the surface with a sharp-toothed rake and followed with the lawn-mower, the knives of which must be set as close to the ground as possible so as to cut off the flower heads. It is useless to cut the grass closely unless the stems have been previously raked to the surface, for the mower will simply remove the leaves and cause the stalks bearing the seed to grow and root still closer to the ground.

The weather immediately succeeding the season in which crab grass dies is the most favorable of the year for the growth of lawn grasses, so that however badly a lawn may have been devastated by weeds, if properly cared for, the good grass may be completely restored before frost. Don't be afraid now to dig deep for dock, dandelions, the small roots of the plantain, or to tear up any creeping weed.

It is needless to say that the tearing out of weeds, particularly crab grass, leaves many bare patches. These must receive immediate attention. Stir the soil with a digging fork or similar implement and sow the seed. This will germinate quickly and soon cover the bare spots, and will make sufficient growth to live over winter.

If these suggestions have been followed the condition of the lawn toward the end of October will be better than at any season of the year. It is better to clear out the weeds in the fall rather than in the spring as we are liable to get continued spells of hot, dry

Time is the True Test

of durability in a high-speed machine like the cream separator. No other machine a farmer uses has harder use. Run twice every day, winter and summer, it must not only do thorough work, but to be permanently profitable, it **must** be durable.

U. S. CREAM SEPARATORS

are built for long service. A solid, low frame encloses **entirely** all the operating parts, protecting them from dirt and danger of injury. The parts are few, simple and easy to get at. Ball bearings at high speed points, combined with automatic oiling reduce wear as well as insure the easiest operation. Such careful and thorough construction is what enables the U. S. to better

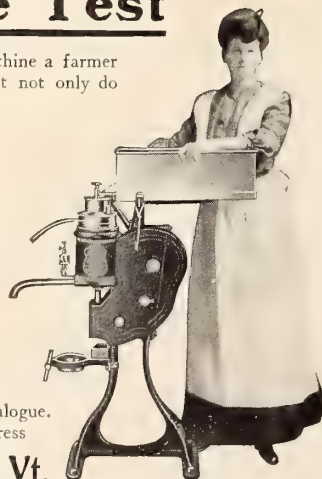
STAND THE TEST

than any other separator. You don't have to buy a new one every year or two. And remember: the U. S. does the **cleanest skimming** all the time.

Look into this. Write today for a copy of our handsome, new separator catalogue. Ask for number 71. It is finely illustrated and tells all about the U. S. Address

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"GOLD MEDAL"

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Barr's Daffodils have been awarded Seventeen Gold Medals, besides many First Class Certificates, etc., by the Royal Horticultural Society, London, and other societies. Many acres of land at Barr's Nurseries, Surbiton, Surrey, England, are devoted to the special culture of Daffodils, Darwin and Cottage Garden Tulips, Pæonies, Irises, and various other hardy plants.



Collections of Daffodils, supplied September to November, from - - - \$4.00 to \$100

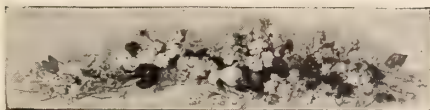
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to you, but we are one of the oldest seed houses in New England and sell the finest stock that can be produced. Our specialty is quality. For fall planting we offer you the

BEST BULBS

for every purpose. They are of the first quality only, grown with expert care, under the most favorable conditions, and will produce flowers indoors this winter or outdoors next spring that will be a source of the greatest pleasure to you.

QUALITY TULIPS, HYACINTHS, DAFFODILS, CROCUS,

and all other flowering bulbs are found listed in our new Autumn Catalogue. You will find this a simple, nicely arranged catalogue for easy reference with beautiful half tone illustrations. Send for a copy.

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Japanese Barberry

Beautiful Grounds

Have an experienced designer help you determine how to produce the best landscape effects on your home grounds. By adopting proper methods of proceeding with improvements, the results generally prove more satisfactory and less expensive in the end. We have 112 acres of choice nursery stock grown especially for immediate landscape effects.

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Berberis Thunbergi attains a height of from four to five feet; is thoroughly hardy and a vigorous growing shrub, needing little or no care. It has bright green foliage which in the Autumn assumes beautiful hues of crimson, orange, and bronze. After losing its yellow flowers in May, the branches become hung with abundant bright scarlet berries, exceedingly showy during the duldest months of the year. The thorny branches make a beautiful and impenetrable hedge, especially graceful planted on top of a terrace slope.

Price, 3 ft. bushy specimens, \$5.00 per doz.
\$35.00 per 100

No orders for less than six plants of one variety at the dozen rate, nor less than fifty at the hundred rate.

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Queens, Long Island, N. Y.

ROSES PEONIES

"A Little Book About Roses"
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Are far and-away ahead of anything of their kind yet published. They tell in minute detail how to most successfully cultivate these flowers, and tell honestly of the respective merits of the choicest varieties in cultivation to-day.

They embody the results of fourteen years of enthusiastic experience. They are also gems of the printer's art. Both will be mailed on receipt of ten cents in coin or stamps—a nominal charge to insure appreciation.

G. H. PETERSON

ROSE AND PEONY SPECIALIST

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Hyacinths
Lilies Crocus
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Tulips Iris Snowdrops

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JAMES VICK'S SONS

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weather at almost any time after May 15th. During such weather the grass grows very little and is often burned out completely. This leaves a free field for the crab grass, sometimes called a "summer grass," which flourishes under just these conditions. Crab grass and in fact any lawn weed grows less freely if the ground is already occupied by good grass. And the surest way to get a good thick sward in the spring is to be sure that it is formed during the fall.

A fall sown lawn has a much better chance of succeeding than one sown in the spring. Lime is a very good fertilizer for grass. The reason that there is a blue grass region in Kentucky is because it is also a limestone region. The best method of procuring lime for use on the lawn is to purchase from a local dealer in the spring a sufficient quantity of new lime. This should be placed in the cellar of the dwelling in barrels which should be only half filled or partly fill some boxes. As the lime absorbs moisture from the air it will help to keep the cellar dry during the summer, and by fall the lime will become thoroughly slacked. Apply this air-slacked lime to the lawn, any time after the ground has frozen, at the rate of one bushel to each thousand square feet of lawn, or at the rate of forty bushels to the acre. Lime sweetens soil, and if it is applied each year will rid the lawn of many plants that thrive in sour soil, such as moss and sorrel. It is not advisable to top-dress a lawn with any kind of stable manure, they all contain weed seeds. Bone meal is just as cheap and more lasting.

New Jersey.

W. R. S.

Fallen Leaves

can be gathered more quickly, easily and thoroughly, and in less time, with the "Apollo" Sweeper than with rake and basket, or by any other method. They will come in very handy for covering flower beds, tender roots, etc. Used as bedding for horses and stock they will soon save you more than the cost of the Sweeper.

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The Whole Story of Bulb Culture in a Few Words

AS A rule bulbs prefer a light, well drained, moderately rich soil, a winter mulch, an annual top dressing of manure during the growing season and no manure at all at planting time. Fresh manure must never be used in bulb beds and even well decomposed manure must be six inches below the bulbs or it will burn the roots. If your soil is not rich enough manure it heavily and grow other plants in it for a year before you plant the bulbs. All permanent bulb beds should be fed annually. A good way is to buy a complete fertilizer. This avoids unpleasant sights and smells.

Dig your bulb beds at least fourteen inches deep. If the soil is heavy, throw it out and replace with good soil, or put a layer of stones at the bottom for drainage. If there is stagnant water at the base of a bulb the roots are likely to rot off. Therefore, the safest way is to put a handful of sand or fine coal ashes under each one.

The easiest way to plant bulbs best is with a dibble, which is not objectionable when the soil is in perfect condition. Another way is to make a marker by driving nails into a board to which a long handle is attached. By this device you can insure mathematical accuracy in depths and distances. The wholesale way to do it is to excavate the bed to the desired depth, prepare a perfectly smooth floor, mark and plant. The rule is to cover bulbs one and one-half times



PEONIES

SHOULD BE PLANTED NOW

Fall is the best time to plant them. The earlier it is done the better — the more certain you will be of having a good display of flowers next spring.

There is no other plant that will give such an attractive appearance to the home grounds, nor one that will supply such an abundance of, or more desirable flowers for cutting. Once they are planted they practically take care of themselves, and are no trouble. They can be massed in solid beds, planted singly, and are also well adapted for planting in borders.

These grand plants are one of our leading specialties and we grow the choicest sorts in large quantities. We also have a very complete line of other choice, hardy plants and shrubs that should be planted in the fall for best results.

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Wagner Park Conservatories, Sidney, Ohio

Get the New, Free BEE BOOK

Such a handsome cover in gray and lemon yellow! Here's a half-tone cut of it. The inside matter is absorbingly interesting from the hive on title page to the commutation ticket on page thirty-two. It gives pictures of

Mr. A. I. Root in 1865, in 1873 and in 1905. Also productions of Gleanings in Bee-Culture when it was first started in 1873 (Vol. 1, No. 4) and a recent 1906 number. The book is full of pictures. Its title is "Bee Line to Profit." The booklet gives dozens of reasons why bee-keepers or other persons who love bees and honey, should subscribe to

Gleanings in Bee-Culture

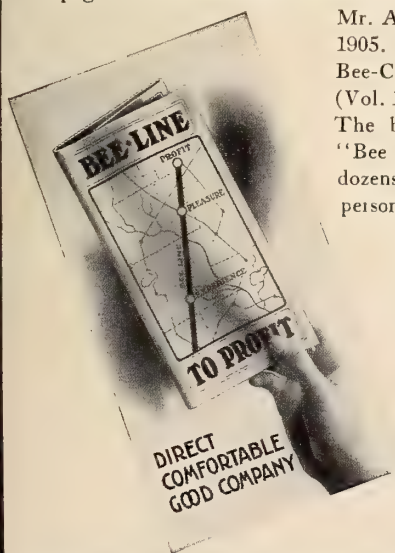
The eleven editors headed by A. I. Root and E. R. Root have each a page devoted to his picture and a short biography and description of his department. These editors make the strongest battery

of writers on bees and honey to be found anywhere.

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HAND C

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There are just two questions to settle about having a greenhouse—

—THE KIND YOU WANT—
—WHEN YOU WANT IT—



THE kind depends on both what you want to grow, and where you want to situate it—things that we are very near ready to help you about. As to when you want it—the sooner you get in touch with us the better. It will take at least three weeks or so for preliminary correspondence, plan-making, etc., then six weeks more for the factory to turn out and erect the greenhouse. That brings it the last week in November, with all the winter before you for vegetables planted from seed and the growing to bloom of the plants you can get from the florist.

We have a booklet called "How to get started with a snug little greenhouse," that gives a lot of condensed common sense told in an almost interesting way. It will answer many of your questions—we will answer the rest. Send 5c. in stamps for this booklet.

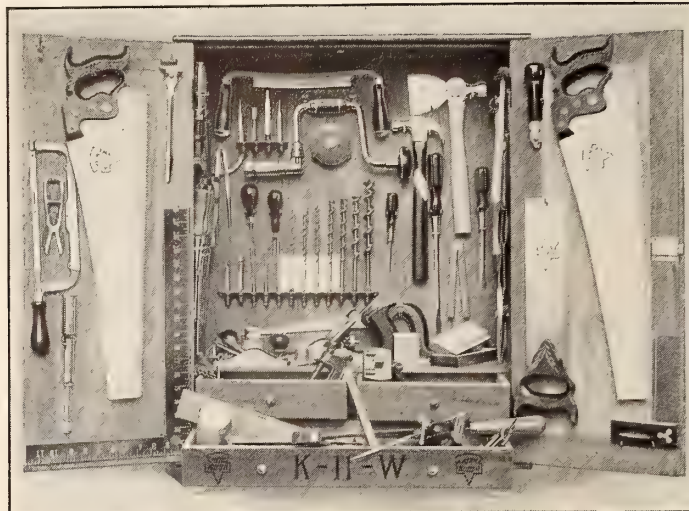
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HAND C

The Right Tool in the Right Place



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their own depth, but lilies should be planted about three times their own depth. The deeper and later you plant, the later the flowers, but the less chance of the flowers being spoiled by bad weather in spring.

If you cover your bulb beds before the ground freezes hard mice are likely to nest in the litter and eat the bulbs. Wait until rodents have found their winter quarters. Then cover with leaves (oak leaves mat down less than maple) and lay on some evergreen boughs to keep the leaves from blowing away. Hyacinths should have a 3- or 4-inch layer of leaves or litter, but two inches is enough for tulips and lilies. All lilies should have a 2-inch mulch in summer to protect them from drought and the most advanced practice is to put them in rhododendron beds. Both plants are shallow-rooters, are fond of leaf mold and need the same kind of winter and summer mulch.

Even in so simple a matter as mulching there are new ideas. Save the buckwheat hulls in which your bulbs are packed and buy more if necessary, in order to coat your bulb beds with them before you put on the mulch. Next spring when you remove the mulch, you will be delighted to find it a simpler job than ever before.

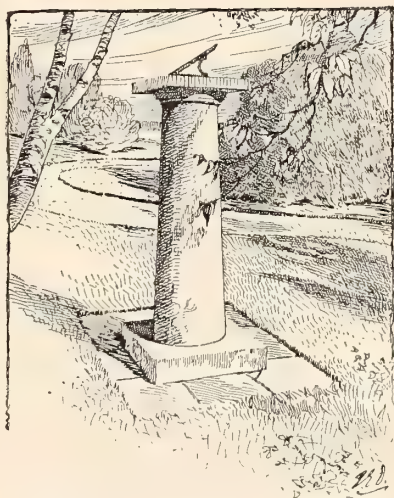
The object of mulching is to prevent the alternate thawing and freezing which heaves and breaks the roots. One of the fine points in bulb culture is to remove this mulch early so as to harden the young growths. If they come up through the mulch and get drawn and yellow, they are in no condition to resist later frosts. March is the critical month in the North. If you remove the mulch in early March and a severe cold spell comes, put back enough litter to protect the bed from a sudden thaw.

How long to leave bulbs before dividing them is a question that can never be answered by figures alone. The most permanent way is to naturalize them. Many kinds have held their own for twenty years without any attention other than an annual top dressing of fertilizer. But in ordinary bed culture, the most permanent "bulbous" plant is the peony, which lasts ten to twenty years.

The rule is to dig up "permanent" bulb beds only when the flowers begin to deteriorate. If they are poorer the second year, it is a fair token that the cultural conditions are not congenial, but if the bulbs are happy the second year let them alone until they crowd so much as to come to the surface or show by smaller flowers that they are too thick. In poor soil daffodils may simply hold their own; in rich soil they should need dividing every four or five years. In high-grade bedding tulips, hyacinths and daffodils are used only once and then planted out in the borders. The other bulbs may require division in from two to five years.

Labels in bulb beds are most unsightly and if there is only one variety in a bed it is better to keep the record in a notebook. If you have a large collection, try this scheme: Use 8-inch painted wooden labels, of which only three inches show above the ground. Use a typewriter on the labels; it makes the names wonderfully clear, neat and compact. New Jersey. THOMAS McADAM.

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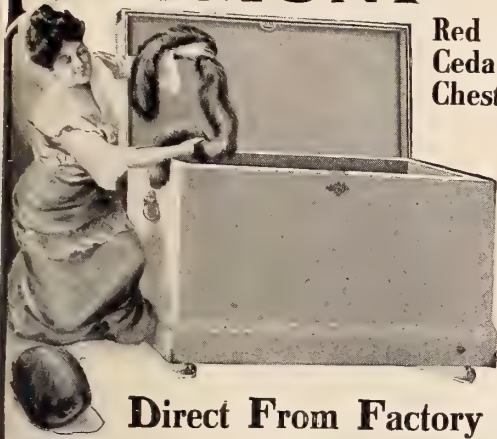
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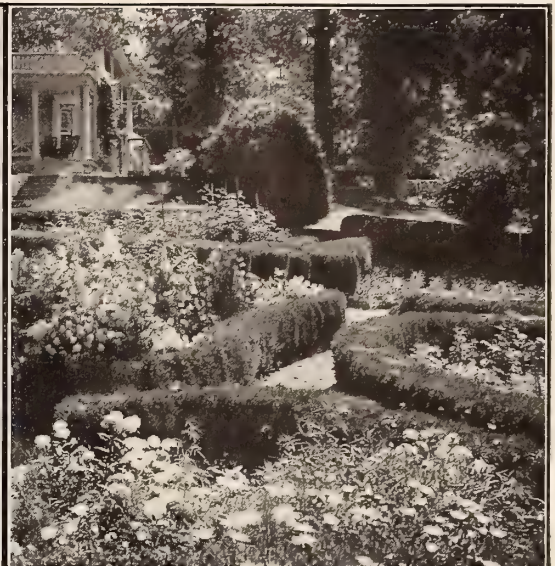
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A perfect "specimen tree" (Silver Linden). Our landscape department will gladly tell you the best kinds and how to get magnificent effects like this.



We can reproduce for you the very spirit and letter of the precious old Colonial garden.

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Of these we have the most complete collection in the country; having many acres of plants with hundreds of distinct attractive kinds for old fashioned gardens, pond-side planting, and plants for every position. The remarks and information on page 68 of our general catalogue will be found instructive and interesting. Iris, Peonies, Phlox and hundreds of other hardy plants are described, in addition to a number of new and rare old fashioned plants.

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The laying out and planting of these favorite old time gardens is one of the specialties of our Landscape Department. The management of this department has made a life long study of these popular plants and know the practical and artistic value of every plant; and so, as old fashions become new again, we gladly assist in the reinstatement of old time hardy flowers, ornamental hardy grasses and ferns.

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The reader will no doubt look back to the old Boxwood bush or hedge at home and with some imagination inhale that familiar and delicate aroma, which, once tasted, is never forgotten. Interview us if you intend to make an old fashioned Boxwood Garden.

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Oriental Planes, Pin and Golden Oaks, we have a large quantity of other trees in a great variety, that are particularly adapted for ornamental lawn and street planting.

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Of these we have several acres planted with many thousands of all the finest and most popular varieties.

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Your Trees, Shrubs and Plants at Attractive Prices

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Of large size and variety.

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In quantity from seedlings upwards. Lawn seed of best quality for Fall planting at much lower prices than you can buy it in Spring. Plant now and save the difference.

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4 to 6 in. in diameter, 16 to 30 ft. high
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Hand-woven by Indians in Mexico from strong palm fibre. Uniquely colored, durable, useful, ornamental. 8 inches high; fine for den, sewing room, etc. Warranted genuine. Retail for \$1.00, but for a limited time we will send, prepaid, for 25 cents (2 for 44 cents, different designs).

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All Indian hand-made; raw-hide soles, buckskin tops, prettily beaded, sinew sewn. Will outwear two pairs of shoes. Natural foot-shape, comfortable and just the thing for house slipper, garden or camp. Procured by us direct from the Indians and offered here at half regular retail value. Note sizes offered: Indian's foot is smaller than white's, hence large sizes are hard to procure. 1/2 beaded, small amount bead work on top, sizes up to 7, pair \$1.50; over 7s, supply limited, \$2.00. 3/4 beaded, finer beading and handwork, like illustration, all sizes to 8s, pair \$2.25. Full beaded, finest Indian handwork throughout, all sizes up to 8s, a pair \$3.00.



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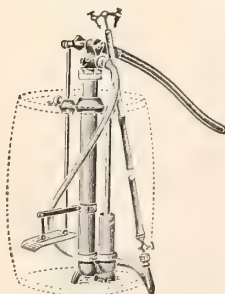
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BY A SELECTION of varieties in regard to their season of bloom, daffodils in the open may be enjoyed for ten weeks, and if locations permit, by a little forethought in planting the season may be extended over one-quarter of the year: Plant early flowering varieties in early ground, and your later sorts in late ground. Even though the different locations may not be more than twenty feet apart, the difference in time between the melting snows on the north side of a wall means a difference in the earliness of the ground. Now, if you plant in the early ground extra early flowering daffodils, such as Early Bird, you will have flowers in this latitude in March, followed by the midseason or April flowering varieties. Early in May the late varieties like Glory of Leiden, Incomparabilis and many of the Leedsii and Barrii groups will flower. The extra lates include the Poeticus section.

These, if planted in the late or partially shaded location will carry the daffodil season well toward June.

They may also be grown in pots plunged in a trench about one foot deep, with ashes



Sir Watkin, best of the medium-crowned or cup daffodils. Flowers often five inches across

underneath, to give drainage and keep the earth-worms from getting into the pots, or the potted bulbs may be placed in a cold-frame. In either case, it takes about two months for them to root thoroughly, after which a pot or two, as desired, may be brought into the house, for flowering. The daffodil is not a lover of heat. Although many of the species are natives of hot regions bordering the Mediterranean, some even being found wild on the African side, yet during hot periods they ripen up and dry off. In our climate the temperatures best suited to them are: 40° for rooting and to retard top growth, continued until the pots are full of roots, in coldframe or plunged. For development of leaves, stems and flower-buds 50° for about two weeks, in a cool, light garret or cellar. For the development of the largest flowers of durable substance, in conservatory, or sunny window, (60° to 70°). A temperature much over 70° when in bud, rushes the development of the buds with corresponding lack of substance and lasting qualities to the flower. In dry, furnace-heated rooms the flowers of daffodils, as of all plants, are shorter-lived.

New Jersey.

A. M. KIRBY.

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For Fall Planting

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Illustrated and Descriptive Catalogue, also list of Novelties and Specialties, with beautiful colored plate of the New White Rose, Snow Queen (Frau Karl Druschki), mailed free on request.

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Nurserymen, Horticulturists
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Write to me about your troubles and triumphs in gardening. I am greatly interested and I have found out some of the little secrets in growing things that mark the difference between success and failure.

My experience with my large *Floracraft Trial Grounds and Seed Gardens* enables me to give valuable suggestions and practical help.

I will send you my catalogues and circulars whenever they are issued, if you want them. Write me to-day.

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those who have room to plant liberally. Nearly all of Horsford's plants can be set in fall as well as spring. It is better to set most hardy plants in the fall than late spring. Spring catalogue mailed to those who have not had it. These two lists offer about a thousand kinds for sun, shade, wet and dry soil. Ask for Supplement and catalogue before placing your orders.

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We can help you to attain it, for we have a big stock of almost anything in the way of perennials, but are making a specialty of only a few: Kelway's Famous Delphiniums, Hardy Phlox, and Oriental Poppies, besides a few vines, such as Wistaria and Clematis.

The climate of our part of Tennessee is peculiarly adapted to growing things—plants of all kinds grow longer, stronger and better, and when they are transplanted they carry those good qualities with them.

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Window Gardens

with ventilating apparatus and all the growing essentials of a greenhouse. Owing to a large demand for a mechanically practical window garden we have just designed this window garden which is really a miniature conservatory!

Do you know that with a window garden of this kind you can supply your house with cut flowers all winter? You can have flowers in a score of varieties from Christmas to Easter. Think of having Tulips, Hyacinths, Daffodils, Azaleas, Cyclamen, Cinerarias, Primroses, Hydrangeas, Oranges, clambering vines such as Smilax and Nasturtiums, and other plants in a riot of bloom.

In winter and early spring flower and vegetable seeds can be started as in a greenhouse, which, when planted out will give you results weeks earlier than if you waited to sow seed in the open ground. You can also revive in it your dying plants that are doing service in your living room. A stove is not even necessary for heating as the heat of the house is sufficient in ordinary weather, and in severe weather a small lamp provides the necessary warmth.

This window garden is, in effect, a small conservatory, and will give distinction and uniqueness to your home. It is portable and can be attached to or removed from a rented house.

The regular stock size we have made measures 5 feet long, 2 feet 6 inches wide, 6 feet 6 inches high, and will fit any standard window.

PRICE \$42.50

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The above price includes weather strips, supporting brackets, and is complete in every detail for erecting. It is shipped in "knock-down" shape and can be easily attached by your local carpenter or any handy man. Estimates on special sizes for large windows sent on request. Illustrated pamphlet with detailed description sent for the asking.

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5 BEEKMAN STREET, NEW YORK CITY

MR. J. F. OMARA,

for many years General Manager of T. J. DWYER & CO., ORANGE NURSERIES, having severed his connection with the above concern, will in future represent

BROWN BROTHERS NURSERIES,

Personal attention will be given, as in the past, to all inquiries and orders. Specialty of TREES and SHRUBS in carload lots.
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The Most Remarkable Fertilizer Discovery of Recent Years.

"BONORA," the discovery of an English chemist, surpasses any fertilizer ever prepared because it contains in the right proportion the elements necessary to plant growth, being rich in nitrogen and other essential plant foods. It matures flowers and vegetables weeks earlier, producing almost magical effects.

Now is the time to use "BONORA" on your chrysanthemums, house plants, shrubbery, celery, vegetables of all kinds, and in your greenhouse. Give an application now to your grape vines, shrubs, young trees, etc., which will create a strong, vigorous, downward root growth this fall, insuring an early and healthy growth next Spring. It is endorsed and used by the greatest growers in the United States and England.

Put up in dry form in packages as follows:

1 lb. making 28 gallons (postpaid)	\$.65
5 " " 140 " " "	2.50
10 " " 280 " " "	4.75
50 " " 1400 " " "	22.50
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Put up in liquid form as follows:

1, 2, 5 and 10 gallon kegs,	per gallon,	\$2.00
Half Barrels (cont. 25 gals.)	" "	1.75
Barrels (" 50 ")	" "	1.50

One gallon makes 100 gallons.

Order direct or through your seedsman

Send for pamphlet of endorsements and reports of experiment stations

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[EDITOR'S NOTE.—When in doubt or trouble write THE GARDEN MAGAZINE. We will answer promptly by letter. If we do not know a satisfactory solution we will get one from an outside expert, without charge to subscribers. Please enclose a stamp for reply. The questions answered below are only a small fraction of those we get every week. We are glad to investigate problems for our readers because the questions show us what our readers want, and because we expect that those who get satisfactory service will recommend THE GARDEN MAGAZINE to their friends.]

WHITE OAKS FROM SEEDS

D. C., New York.—The seeds of the white oak should be sown as soon as ripe in October.

WINTERING ENDIVE

I. A. C., Mass.—Store the endive the same as celery in a cool cellar or frost proof trench setting the roots in damp sand or earth.

SOW PEONY SEED IN THE FALL

H. G. T., Conn.—Peony seed should be sown in a cold-frame as soon as it ripens. It will not grow, however, until the following spring.

RIDGE THE VEGETABLE GARDEN

H. M. T., Penn.—You will find that it is an advantage to your garden if you fall plow, or throw your soil into ridges. This gives the weather a better chance to work on the soil and it also kills many insect pests.

GOOD EARLY STRAWBERRIES

R. P. I., N. H.—Try Michel's Early, Johnson's Early or Climax strawberries. These do not have so much acid as does Excelsior. See Mr. Wood's article on strawberries in June, 1905, GARDEN MAGAZINE, pp. 218-221.

SCURFY SCALE ON ROSES

H. M. J., Va.—The scurfy scale on your roses can be gotten rid of very easily if you spray them with whale-oil soap—one pound to a gallon of water—this fall after the leaves drop; repeat it in the spring before growth starts.

SOFT COAL SOOT FOR PLANTS

J. B. P., New Jersey—Soft coal soot has a distinctly beneficial effect on certain soils, but unless it is very easily procured it is not worth while bothering with it. Gardeners frequently use it because it gives the foliage of plants a beautiful deep green color.

MULCHING ROSES

O. G. M., Vt.—Your roses will come through the winter in much better shape if you give them a heavy mulching of manure. Put on enough so that when it has settled there will be a 6-inch mulch. Do not apply the mulch until the cold weather has come—the middle or last of October.

HARDY HYDRANGEA FROM CUTTINGS

E. C. A., New Jersey—Nurserymen usually propagate *Hydrangea paniculata* var. *grandiflora* by half ripened wood under glass in late summer, but if cuttings six inches long are made in September or October, after the leaves have fallen, and planted in the ground at once with only one bud above the soil a large percentage will make roots the following spring.

PRUNING RASPBERRIES

J. H. B., Tenn.—Raspberries fruit on the canes that were made the previous year while blackberries fruit on this year's wood, but the pruning is the same. Cut out the canes that have borne fruit this year leaving enough space for the new growths that spring up from the base. Read Prof. Fletcher's article in the July, 1906, GARDEN MAGAZINE, page 327.

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A DIRECTORY
OF LIGHTING
EQUIPMENT

GENERATORS,
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SUPPLIES, Etc.



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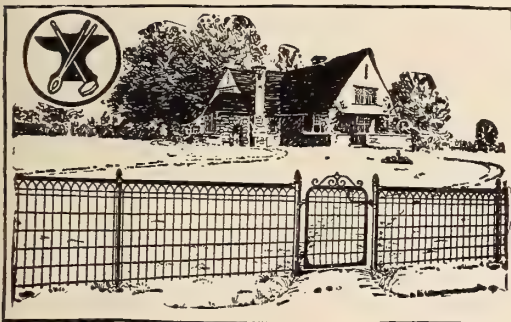


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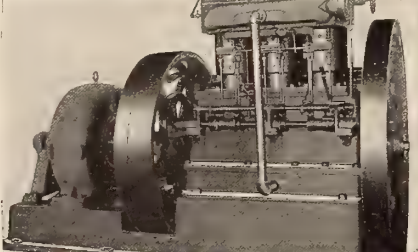


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Water For Your Country Home

IF YOU live in the country there is a way for you to enjoy *all* the comforts and conveniences of a *city water supply* without a penny for water tax.

It is accomplished by the **Kewanee System**.

With the **Kewanee System** you get even *more* than city service, because, in addition to every benefit the latter affords, you may have

—Soft water in your bathroom and laundry.

* * * * *

The **Kewanee System** is easily explained; it consists simply of having a **Kewanee Pneumatic Tank** set in your cellar or buried in the ground.

The water from *your own well or cistern* is pumped into the **Kewanee Tank**.

From the tank the water is *delivered under pressure* to the laundry tubs, kitchen sink, bathrooms, outside hydrants or wherever wanted.

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It is this pressure exerted on the water which delivers it to the plumbing fixtures and hydrants.

An average pressure of 40 pounds may be maintained under ordinary conditions. This will carry water to a height of 80 feet, thus affording *splendid fire protection*.

You see that the *method*, while perfectly simple, is based on a thoroughly *scientific* plan.

The **Kewanee Water Supply Company** was the first to *apply* this principle successfully in supplying water to country houses, and after *ten years of experience* the system has proved to be entirely *practical* and it is rapidly growing in favor.

Over 5,000 Kewanee Outfits now in use.

The old style elevated tanks are passing.

—Because they stand no show in competition

with the modern, no-trouble system—the **Kewanee System**.

The old fashioned gravity system meant pumping water *up* in order to get it *down* again.

Now, to give the necessary pressure for fire protection and service, the elevated tank must be located on top of a tall tower. This is expensive, unsightly and unsafe.

The water freezes in winter, becomes warm and stagnant in summer, and repairs are a big item of expense.

The attic tank doesn't give sufficient pressure for fire protection.

Its weight is apt to crack the plastering, and when it leaks (as it is pretty *sure* to do) your house is flooded. Just one such expensive accident may cost you many times the price of a **Kewanee Outfit**.

—Which *cannot* flood the house, because the tank is resting on *solid ground* where it can do no damage.

The installation of a **Kewanee Pneumatic Water System** in your country home means

- Plenty of pure, fresh water,
- Cool water in the summer,
- No freezing water in winter,
- Absolute protection from fire,
- Decrease in insurance rates,
- A plant that will last a lifetime,
- No expensive repairs.

It solves the country water problem completely.

The **Kewanee System** will take care of *all* your needs—for home, garden, lawn, stables, poultry houses, etc.

* * * * *

Our **Kewanee Outfits** are *complete*.

Not an engine only, which in itself cannot give you a water supply—nor a tank only, which is useless unless you have some form of pumping power—

But, we furnish the *whole* thing—a *complete system* of water supply.

Our engineering department is prepared to solve your water problem—no matter how difficult that problem may now appear.

Kewanee Outfits are made in sizes suited to the smallest cottage—or largest building—or group of buildings.

We guarantee every **Kewanee Outfit** to give *perfect service*.

Send for catalog No. 16 which gives names of users in your State—free if you mention this magazine.

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Gardeners Supplied

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400 Acres in Nursery Stock

Largest in the State of New Jersey.

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ELIZABETH, N. J.

GROW HAWTHORNS FROM SEED

A. E. C., New Jersey—The hawthorns (*Crataegus*) are grown from seed. Collect the seed as soon as ripe, put in a tub with a little water and allow them to ferment. As soon as the pulp has become soft rub it off and stratify the seeds in damp sand. Sow out of doors next April.

PLANT ASPARAGUS IN APRIL

B. D. F. B., New York.—The best time to plant asparagus is as early in the spring as the ground can be worked. It may be delayed until June but great care must be exercised to prevent the plant from suffering from want of water. Watch the spring numbers of the **GARDEN MAGAZINE** for an article on this subject.

A SUCKERING ELM

A. M. R., Cal.—The elm (*Ulmus racemosus*) seldom suckers except where the trunk is suddenly killed leaving a healthy root system in the ground. These roots will immediately send up suckers. The only way that the ground can be cleared is to dig out the roots and when suckers show above the ground dig them out by the roots also.

RUST JOINTS

L. E. B., Mass.—To make a good rust joint, first put into it a strand of tarred rope which should be rammed back to the shoulder. Then pack the joint full of freshly made cast iron filings which have been dampened with water. The joint will set in three or four days. It is not necessary to use sal-ammoniac but it is sometimes used to hasten the rusting.

NATURALIZING DAFFODILS

E. F. D., Tenn.—The only thing that is necessary to naturalize daffodils in the grass is to plant them there. To get the best effect throw the bulbs out by the handfuls and plant them just where they fall. This will give a drift from a central colony and have the appearance of natural spreading. The effect is greatly improved if the natural spread is taken in the direction of the prevailing wind.

LIME WATER FOR WORMS

C. F. C., Neb.—To rid the soil in your flower pots of worms, use limewater. To make limewater, put into ten or twelve quarts of water $1\frac{1}{2}$ or 2 lbs. of fresh lump lime. Let it stand a couple of days or until the lime has slacked and settled, then pour off the clear water for use. Water the infected soil with this water two or three times at intervals of two or three days. It will drive the worms out.

GROWING PRIVET FROM HEDGES

W. F. P., Md.—Take cuttings six inches long of the privet this month. Tie in bundles of about fifty and store in damp sand in a cool cellar over winter. In April plant the cutting six inches apart in nursery rows in V-shaped trenches. These cuttings will make plants $2\frac{1}{2}$ feet high by fall. At each transplanting set the plant six inches deeper than they were before. This will make a hedge with a good bottom.

GRADING AROUND TREES

J. B. W., Ill.—Young trees are liable to be injured by a 2-foot fill of earth because the roots will be unable to get sufficient air. Put around the base of each tree, before filling in, several wheelbarrowfuls of stones. Large trees ought not to be injured by the fill but if you have any doubts build a brick wall around each tree as high as the fill will be deep, before the grading is done. This has been done in many places with success.

GROWING THE BOX FROM CUTTINGS

P. F. W., Md.—The box (*Buxus sempervirens*) may be hardy with you. If it is, it is the best hedge plant you can get for the garden. Make cuttings six inches long in September when the wood has ripened. In your locality they will probably root if planted out of doors in a shady place. The dwarf variety is usually propagated by dividing the plants. The box can be grown from seed but it takes a long while to get good plants.

THE CULTURE OF ASCENSION LILY

H. M. P., New York—The ascension lily (*Lilium candidum*) is one of the very best lilies for forcing. Use a good rich soil. Plant as soon as can be obtained, putting a single bulb in a 6-inch pot or three in an 8-inch pot. Leave out of doors until November. Then put in a cold-frame or cool greenhouse where there is no frost and but little or no heat until January when they may be brought into a night temperature of 50°. Feed them once or twice a week with liquid manure after the stalks are one foot high. Keep them free from plant lice. Under this treatment they will bloom in April.

Why You Can Grow Mushrooms



A mushroom bed can be made in many places otherwise useless. In the cellar, under greenhouse benches, in an unused stable or an old outhouse

THINK of having delicious mushrooms for several months from one planting, and of making beds in your cellar—on the floor, on a table or on shelves, or on the floor of an unused outhouse. The only requirements are comparative darkness, an even low temperature and pure culture spawn.

Four years ago the growing of mushrooms was considered the most uncertain thing in horticulture, but now the pure culture method of growing spawn has eliminated the most important of these uncertain factors. Not only does it simplify wonderfully the raising of mushrooms, but it makes it possible for us to have varieties of mushrooms for the first time, just as we have a Ben Davis and a Baldwin apple.

What is pure culture spawn and why is it better? It is a scientific laboratory process by which the "virgin spawn" is secured directly from the tissue of a mushroom having all the qualities that we most desire. Four years ago all the commercial growers of mushrooms used foreign spawn. Now, more than half of it is produced in America by the pure culture method because the grower is now sure of having mushrooms of the desired color, and of uniform size. Formerly he was not even sure of getting the same species, to say nothing of the same variety.

To the amateur, the new discovery makes all the difference between success and failure. It is now perfectly practical for you to raise mushrooms in your own cellar and thus supply your table with one of the most tasty and delicious of all table delicacies. Mushroom growing not only supplies your table with one of the most toothsome of dishes but it

gives you the pleasure of gardening during the winter without a greenhouse or even a cold frame! And the expense of spawn is trivial.

Let us send you our booklet on mushroom culture which gives you the story in a nutshell, with illustrations, and tells about our pure culture spawn, with prices. It's yours for the asking.



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CONTENTS

PART I.	
CHAPTER	CHAPTER
I. Introduction to Plants.	IX. Seeds.
II. Roots.	X. Seed Planting.
III. Soils.	XI. Spading and Plowing.
IV. Relation of Soils to Water.	XII. Harrowing and Rolling.
V. Forms of Soil Water.	XIII. Leaves.
VI. Loss of Soil Water.	XIV. Stems.
VII. Soil Temperature.	XV. Flowers.
VIII. Plant Food in the Soil.	
PART II.	
XVI. Fertile Soil.	XXI. Commercial Fertilizers.
XVII. Soil Water.	XXII. " "
XVIII. The After-Cultivation of Crops.	XXIII. " "
XIX. Farm Manures.	XXIV. Rotation of Crops.
XX. " "	XXV. Farm Drainage.



Hardy Flowers for the Old Fashioned Garden

Make an old fashioned garden this Fall which will give endless charm to your grounds next year from earliest Spring until Frost. The stately Iris, the graceful bell-flowered Campanulas, the beautiful deep blue Larkspurs, Columbines, Foxgloves; Phloxes to prolong the season, and the ornamental Bocconia, Roses, etc., as well as all good hardy perennials for the garden border.

For the Wild Garden

The beautiful Helenium, Boltonias, Lobelias, Native Asters, Lythrum Salicaria, etc.

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Have you ever tried a wild garden? Located in some secluded spot, it will prove a continuous delight to you. Let us help you make one this year.

Hedge Plants, specimen Norway Spruce, and other fine nursery stock. Send for illustrated catalogue. Expert advice, plans, etc.

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COUNTRY LIFE
IN AMERICA



THE WORLD'S WORK
FARMING



THE GARDEN
MAGAZINE

DOUBLEDAY, PAGE & CO. NEW YORK.



"Better Than Gas" Says This New Yorker.

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Notice, please that Mr. Barnum has used *gas* and *electricity* with all the most approved devices for years. He like thousands of others who use these systems, would probably have pooh-poohed the idea that an oil-burning lamp (or any other system for that matter) could be more satisfactory—until he tried *The Angle Lamp*.

He now admits that The Angle Lamp is *far* superior. For he has found from *use* that this oil-lamp gives him all that either gas or electricity can give in convenience and something more—kerosene quality light. It floods his rooms with the finest, softest, pleasantest of all artificial lights.

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For where the ordinary lamp with the round wick, generally considered the cheapest of all lighting methods, burns but about five hours on a quart of oil, the Angle Lamp burns a *full sixteen hours* on the *same* quantity. This, even where oil is cheap, soon amounts to *more* than its *original cost*. But in another way it saves as much—perhaps more.

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When such people as ex-President Cleveland, the Rockefellers, Carnegies, and thousands of others, after trying The Angle Lamp, find it profitable to rip out gas and electric-light fixtures, to throw away gasoline and acetylene outfits or ordinary lamps it is surely worth your while to send a penny postal to find out about it.

Write for catalog "41" which lists 32 varieties from \$1.80 up, and gives you the benefit of our ten years of experience with all kinds of lighting methods.

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A Charming Wild Garden



with its dainty wild Ferns, Lady Slippers, Wood Violets, Trilliums, Wintergreen, Orchids and other wild flowers of woodland and meadow will bring rare delight to your grounds.

Think of having the Wintergreen, whose aromatic red berries will last all winter, even if it is covered with snow, unless, indeed, you cannot help nibbling them. Think also of having Ground Pine growing in your own garden, that lovely little plant that is used so much for roping at Christmas time; of the Part-ridge Berry, that exquisite evergreen trailer loaded with brilliant red berries which last all winter; of the Cardinal Flower, celebrated by the poets as our loveliest American wild flower, which, contrary to the general impression, does not require damp soil but will grow in an ordinary garden.

All the precious wild flowers of the woods that you love you can grow in the dark, shady places of your garden, and the flowers of the meadow will thrive in open sun.

We have special collections of Ferns on pages 9 and 10 of our catalogue for dark shady places and open sun, dry and wet, large and small rockeries. Also Bog Plants, several of which will thrive indoors, including the wonderful *Dionaea* or Venus Fly Trap, which catches insects; dainty Gentians and Lobelias for planting by brooksides.

For twenty-five years we have studied the habits of wild flowers and have exactly imitated their natural conditions of growth in our nurseries, so that they are preserved here in all their beauty. Grown in cold New England, they are perfectly hardy.

Autumn is a good time to plant a wild garden. Let us help you in your selection.

In addition to wild flowers, we grow **HARDY PERENNIALS**, including the old garden sorts, like Foxgloves, Larkspurs, Lilies, garden Heliotrope, etc.

We also grow the best **SHRUBS** suited for this climate, including several adapted for dark shady places; several are particularly useful in hedgework, like Japanese Berberis, *Rosa rugosa* and California Privet.

Send for our beautifully illustrated descriptive catalogue of over 50 pages, which tells much about this class of plants.

EDW. GILLETT,

Southwick, Mass.

The Elm City Nursery Co.

PLANT IN THE FALL

From now on until the ground freezes hard, planting can be done successfully. When all the rush of early spring comes, what a relief and economy it will be to have the hardy plantings all in and out of the way. Further, many things do far better planted in the Fall.

FRUIT TREES
BERRY PLANTS
GRAPE VINES
FL. SHRUBS
SHADE TREES
FL. VINES
HARDY ROSES
LILIES
HOLLAND BULBS

OUR CATALOG

contains a very complete list of the desirable sorts of the above, sizes and prices being plainly given.

This Catalog is yours for the asking.

Try our Stock and Business methods,
both will please you

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BECAUSE our nurseries are located in the best place in America for growing hardy, vigorous stock that will transplant to the best advantage and produce the best results in any locality.

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BECAUSE we employ *over 3000 resident representatives* to call personally upon our patrons and to assist them in choosing the varieties best suited to their needs.

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November

1906

Vol. IV.

No. 4.

Getting Ready for Winter

Vegetables for Storage
Protecting Roses and Evergreens

Bulbs for Indoor Bloom
Lilies for November Planting

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THE GARDEN MAGAZINE



The World's Work



Country Life in America



Farming

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IRIS—Very large assortment; heavy plants.

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CONTENTS

PART I.	
CHAPTER	CHAPTER
I. Introduction to Plants.	IX. Seeds.
II. Roots.	X. Seed Planting.
III. Soils.	XI. Spading and Plowing.
IV. Relation of Soils to Water.	XII. Harrowing and Rolling.
V. Forms of Soil Water.	XIII. Leaves.
VI. Loss of Soil Water.	XIV. Stems.
VII. Soil Temperature.	XV. Flowers.
VIII. Plant Food in the Soil.	
PART II.	
XVI. Fertile Soil.	XXI. Commercial Fertilizers.
XVII. Soil Water.	XXII. " "
XVIII. The After-Cultivation of Crops.	XXIII. " "
XIX. Farm Manures.	XXIV. Rotation of Crops.
XX. " "	XXV. Farm Drainage.

COUNTRY LIFE
IN AMERICA



THE WORLD'S WORK
FARMING



THE GARDEN
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DOUBLEDAY, PAGE & Co. NEW YORK.

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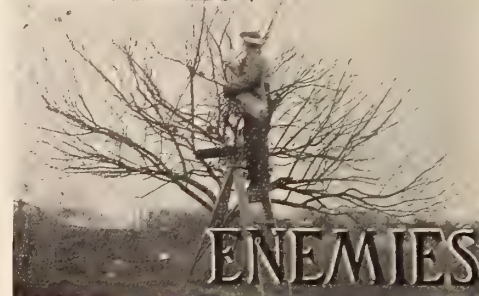
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GARDEN



Important November Work

TO complete the year's work, the garden must be cleaned up. By doing this work now you will have cleaner plants next year.

In the September GARDEN MAGAZINE (page 82), Prof. Sanderson describes one method—fall plowing—of destroying many of the garden enemies. There are many insects and fungous diseases that cannot be destroyed by plowing. The best way to reach these is to collect into a pile all the refuse about the garden, allowing it to lie long enough to dry, then have a bonfire.

From all the fence corners clean out long grass, weeds and bushes, for they all harbor enemies of the garden. The wild cherry trees



Burn the year's accumulation of rubbish. It is best done on a damp day and when the wind will carry the sparks away from the buildings

always have an abundance of tent caterpillars. Cut down the trees, and throw them on to the fire.

All the refuse left from last summer's crops should be collected and burned. It will mean cleaner crops next year.

Gather the asparagus tops, and burn them, for they are liable to be more or less infected with rust—the worst enemy asparagus has.

Most people leave the potato tops lying on the ground where they grew. This furnishes an excellent home during the winter for the potato beetle. Better collect and burn them.

Clean up the herbaceous borders before mulching. Cut off the old flowering tops of all such perennials, as the golden rod, Michaelmas daisies and sneezeweeds. If left on the plants they give the border a very untidy appearance; they are of no further use to the plants and help to harbor insects.

November is an excellent time to prune fruit trees and grape vines. Burn all the prunings.

G. L.

THE FROG BOOK. By MARY C. DICKERSON. Frogs and toads have been comparatively neglected in nature study; but here is one of the most fascinating nature books it has ever been our good fortune to publish—a work of reference which is authoritative and complete, yet as readable as “nature

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THE GARDEN
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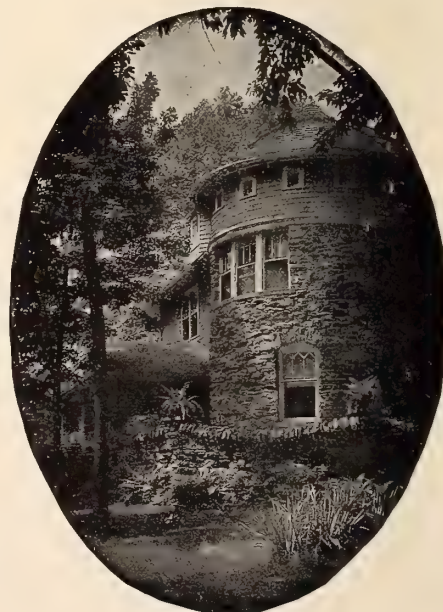
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THE GARDEN
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DOUBLEDAY, PAGE & CO. NEW YORK.

DURING each month of this year the sales of our books have been greater than the corresponding month a year ago, but a more important fact is that the year's publications have been more substantial and lasting in character; and, after all, it is the work which lasts that counts.

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Any of them will be sent on approval.

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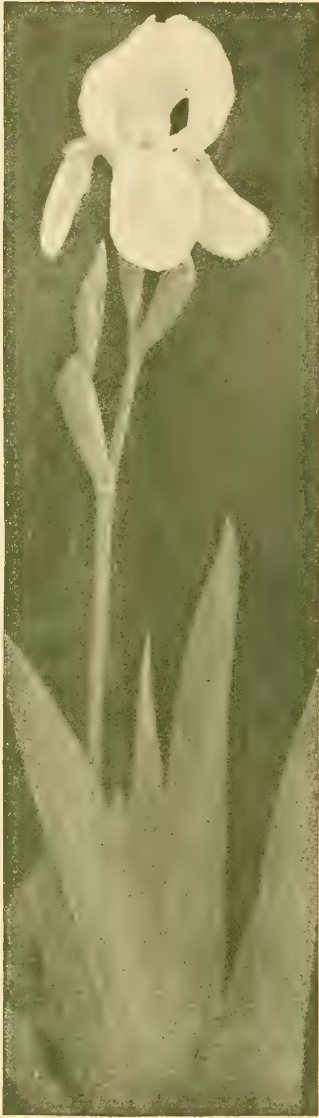
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for 1907



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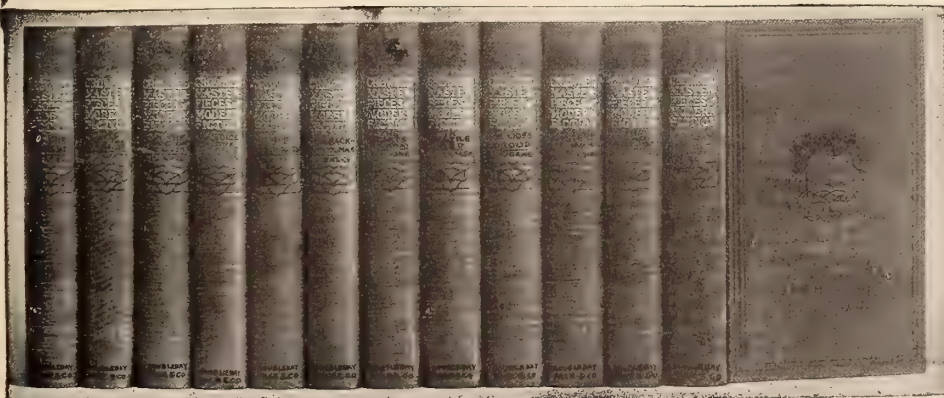
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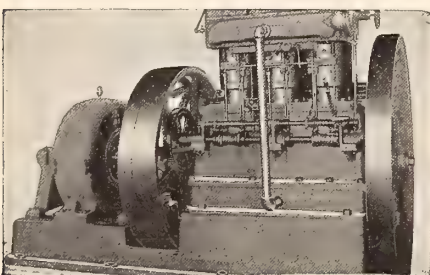
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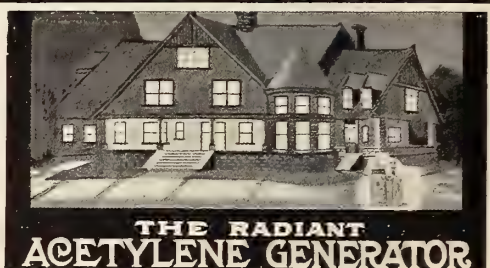
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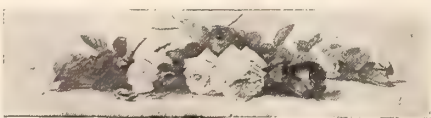
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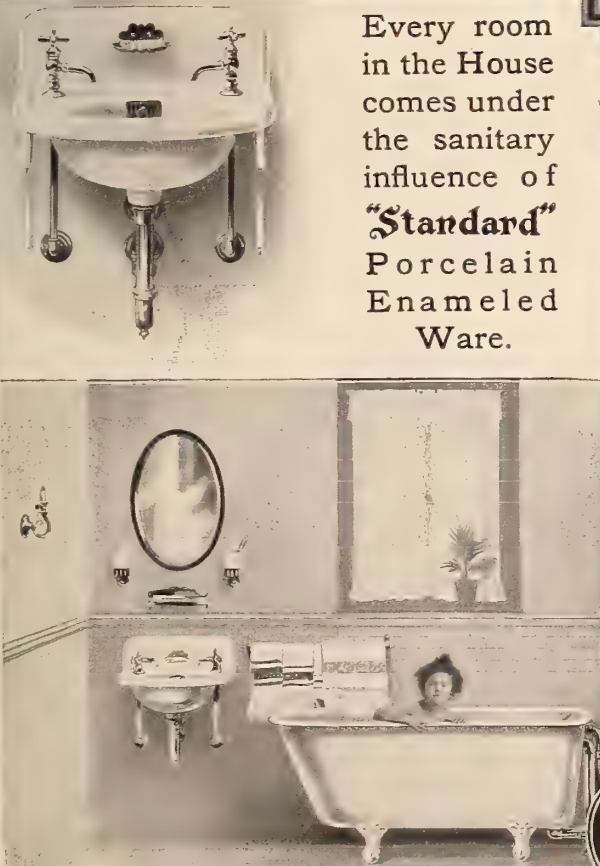
NOVEMBER, 1906

COVER DESIGN—A Trained Specimen Chrysanthemum Plant

	PAGE		PAGE
THE GARDENER'S REMINDER	173	MULCH YOUR HARDY BORDERS AND BULB BEDS IN NOVEMBER	196
GETTING READY FOR WINTER	174		
Photographs by the author and H. E. Angell			
WINTER WORK AGAINST INSECTS	178	AN EXCELLENT WAY OF HANDLING BULBS FOR FORCING	198
Photographs by the author		Marcia E. Hale	
THE BEST AQUATIC PLANTS	180	KILL THE CUTWORMS IN THE GREENHOUSE	200
Photographs by the author, H. E. Angell, and others			
FRESH VEGETABLES ALL WINTER	183	MAKING SOUTHERN LAWNS	202
Photographs by the author, E. D. Darlington, and others		Photograph by the author	
THE TWO BEST TALL LILIES FOR NOVEMBER PLANTING	187	THE SOUTHERNER'S REMINDER	204
A. Herrington			
Photographs by the author and Vermont Experiment Station		A SPECIMEN CHRYSANTHEMUM	204
BULBS AND PERENNIALS FOR NOVEMBER PLANTING	188	ANSWERS TO QUERIES	206
Harold Clark			
Photographs by N. R. Graves and H. Troth		PERSONAL EXPERIENCES	214
RAISING YOUR OWN TULIPS	190	SOWING ICELAND POPPIES IN NOVEMBER	214
Photographs by the author		LETUCE IN MARCH WITHOUT ARTIFICIAL HEAT	214
THE LILY OF THE VALLEY AS A HOUSE PLANT	192		
Clarence M. Weed			
Photographs by the author			
AN ATTRACTIVE EXCHANGE GARDEN THAT WORKS		IMPORTANT NOVEMBER WORK	

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The Garden Magazine

VOL. IV.—No. 4
PUBLISHED MONTHLY

NOVEMBER, 1906

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Before November First, if Possible

PLANT all your hardy bulbs both for indoor and outdoor bloom. They deteriorate every day after November 15th.

It is safe and wise to plant all hardy deciduous trees and shrubs except magnolias and a few others until the ground freezes hard. If there is any danger your nurseryman will notify you.

Plant fruit trees and berry bushes before November 15th and avoid the spring rush. Take no risk on peaches or blackberries.

The fall is the best time to plant lily bulbs, but many do not arrive until November. Heap manure on the proposed lily beds now and you will have unfrozen ground in which to plant the bulbs.

The best of the tall Japanese lilies has at last come down in price so that everyone can afford to try it this year. *Lilium Henryi* is an orange flower of the turk's cap type. It is one of the four hardiest and most permanent lilies, and you can work up a good stock of it at home.

Try the best tall red lily, our native *Lilium superbum*. It grows taller than a man and bears twenty or thirty flowers in a pyramidal panicle.

Three of the twelve most gorgeous perennials are the Japanese and German iris and phlox. You can plant them anytime before the ground freezes. They are as hardy as a rock.

Plant some hardy ferns in that dark, narrow passageway near the house where no flowers will grow.

November is the great month for starting mushroom beds, because mushrooms are most appreciated in early winter. Try the American-grown spawn.

Christmas roses bloom outdoors as far north as New York anytime from November to February. Plant the roots as soon as you can get them from the bulb dealers. They may give a few flowers this winter but it takes two or three years to get a big show.

The only time you can form an intelligent opinion about chrysanthemums is from

October 15th to November 15th. Go to a good chrysanthemum show, note the varieties you want, and order them now for spring delivery. Otherwise you run the risk of "substitution" and objectionable colors.

EVEN AFTER NOVEMBER 10TH

Even as late as December 1st it is better to plant bulbs for indoor bloom, rather than have no home-grown winter flowers. The large bulbs, for example, tulips, daffodils, hyacinths, and sacred lilies do not deteriorate as fast as the small ones. Ask for bulbs that have been kept in cold storage. If they are soft and shriveled send them back. Plant only hard bulbs.

You can have home-grown Roman hyacinths in bloom on your Christmas dinner table if you pot the bulbs before November 15th. Why not start some now in sand and water for Christmas presents? Only six weeks from bulb to flower.

Another way to put personality into your Christmas gifts is to grow a lot of Chinese sacred lilies for your friends. Start them now in bowls of water and you will enjoy two pleasures—growing the flowers and giving them away.

The best rose for Christmas bloom in the ordinary home is the Baby Rambler. In November you can buy from the florist a plant loaded with buds and have the pleasure of watching it come into flower as the Christmas season approaches.

Wholly aside from the ordinary fall-planted bulbs, there are seven kinds that ought to be planted in November for indoor bloom. Read page 188.

HOW TO HAVE PLEASANT GARDEN THOUGHTS ALL WINTER

Read Mrs. Barron's article, make a storage room for vegetables, fill it with good things to eat, and keep it so neatly that you can show it to your friends with pride.

There is a powerful satisfaction in killing insects by the simple, cheap, and wholesale methods described by Professor Sanderson.

What a joy it is to know that all one's trees, shrubs, and fruits are in good shape for the winter. "Come on with your cold!" cry the tea roses. "Our master read Mr. Graves' article. Do you not see our snug overcoats?"

Make a window garden or miniature conservatory, costing less than \$50, take good pictures and you may be able to sell your account of it to the GARDEN MAGAZINE for enough to pay expenses. Thousands of people have good window gardens but no one ever writes us about them.

The best white-flowered narcissus for

winter bloom in the house is the Paper White. You can have these lovely flowers every day from Christmas to Easter if you pot the bulbs before November 1st. Even after November 15th they are worth planting for bloom in February and March.

During the forepart of the month bring in the pots of lilies (*Lilium longiflorum* and its var. *eximium*, known in the trade as *L. Harrisii*) which you intend to have in flower at Easter. A temperature of 50° or 55° will suit them best. About the middle of November bring into heat such pots of Roman hyacinths, Chinese sacred lilies, polyanthus narcissus, and Duc van Thol tulips as you wish for Christmas bloom.

OUTDOOR WORK ON PLEASANT DAYS

Make a compost heap! This is the best time to make it, because the grass is dead. Get sod about three inches thick from an old field or pasture and pile them up in layers, the grass side down. Between the layers of sod put a layer of cow manure, using about one part of manure to three of sods. If turned over a couple of times during the winter this will make the best soil for potting plants.

Cut pine or hemlock boughs now to cover the rhododendrons. Arrange these boughs so that the plants will be protected from the sun and the drying winds.

Gather all the leaves possible! Do not burn a single one.

Put a 4-inch mulch on the rhododendron bed and do not remove it next spring, either. This is one of the little details which makes or mars your rhododendrons.

Pile some of these leaves near your bulb beds but do not cover the beds with them until there is an inch or two of frost in the ground. Never mind if you don't get it on till Christmas, but get it on before snow covers the ground. Bank up your cold-frames with them. With leaves around the frame, straw mats and shutters over the glass, and sometimes a dash of hay or straw on extra cold nights, it is possible to keep the frost out of your frame all winter.

Put the leaves which cannot be used for these purposes into leafmold as described in the October GARDEN MAGAZINE, page 150.

Cover strawberries two inches deep with hay or straw, not this year's autumn leaves.

Cut off asparagus tops and burn them, berries and all, as the seeds may sprout where they are not wanted. Mulch with two or three inches of rough manure.

Plow the garden, if practicable, and turn under all the manure you can get.

Burn all weeds, so that they may not come up next year.



No danger of losing ninety per cent. here! All next summer and fall these teas and hybrid teas will bloom here. Mr. George Eastman's, Rochester



In front yards or on lawns wrapped rose bushes look unsightly and seem to shiver. In these secluded, sheltered gardens they look neat and snug

Getting Ready for the Winter—By N. R. Graves, Rochester, N. Y.

THE CHEAPEST WAY OF INSURING ALL YOUR PLANTS AGAINST WINTER KILLING—PRECAUTIONS THAT EVERY ONE SHOULD TAKE—HOW TO GROW SOME OF THE CHOICEST PLANTS OF WARMER CLIMES WITHOUT A GREENHOUSE

THERE is no such thing as an "absolutely hardy" plant. Even plants, native to the arctic regions, like the Iceland poppy, will sometimes winter-kill. Every tree, shrub, and perennial that you have bought and planted this fall is "tender" to this extent—you ought to mulch it the first winter. After that it becomes "established." But even then you ought to mulch every single plant you grow—the strawberry bed, the hardy border, and even your tall old trees and shrubs.

The reason for this is that the mulch tends to prevent the alternate freezing and thawing, which does more damage than zero weather, because the contraction and

expansion breaks the roots of plants, especially shallow-rooted ones like strawberries. Mulching is the cheapest form of insurance against winter-killing. Everybody can and ought to practise it.

The time to put on this mulch is a few days after the ground has frozen to the depth of an inch or so for the first time. If you do it before, the field mice will nest in the mulch and eat your bulbs. Besides, the object of the mulch, as a rule, is not to keep the frost *out*, as most people imagine, but to keep the frost *in*. This it fails to do in the mildest winters, and that is why the mildest winters are so deadly. A mulch cannot keep the mercury from being in the

seventies for three or four days in January or protect everything from a drop to zero on the next day. But it puts the brakes on both processes and, therefore, we cannot afford to be without it.

The best mulch, as a rule, is straw that has some manure in it, because then you feed your plants and there is not a tree or shrub which will not do better for you if you give it a top-dressing every year. But good manure usually is hard and costly to get and it is not essential for winter protection. Any kind of litter will do, with two exceptions. Don't use anything that has weed seeds in it or you will multiply trouble for yourself. And don't use autumn



Tie and trim straw before putting over



Distribute evenly. Tie with twine every foot



Wrap well at base. Tie low down

ONE WAY OF PUTTING ON A STRAW OVERCOAT



1. Bring together the canes



2. Tie with raffia about every foot



3. Arrange straw and tie at top

leaves of soft-wooded trees, e. g. poplars, horse-chestnut, and soft maple, for they will pack down and smother the plants and create that settled dampness which is favorable for the spread of fungous diseases.

Save every scrap of clean straw and litter on the place. This autumn's leaves can be safely used only in the case of oaks and hard maples.

HOW TO PROTECT ROSES

The one thing everybody wants to have is a lot of tea roses or hybrid teas, because of their lovely form and their habit of blooming intermittently through the summer and

fall. But alas! they are not hardy enough, unless one pays an extra price and gets "budded roses," i. e. roses that have been propagated outdoors instead of in the greenhouse. You cannot have these lovely roses unless you give them "straw overcoats." Even the common garden roses, or "hybrid perpetuals," ought to have such protection north of Rochester.

There are two ways of making a straw overcoat, both of which are illustrated by a complete series of photographs on this and the preceding page.

When the bushes are small, or you have a great many, loosen the soil about roots

slightly, then bend over the plants and cover with about four inches of soil. The late George H. Ellwanger, who had one of the largest and best collections of standard, tea and hybrid tea roses in western New York, and was most successful in their cultivation, always used this method with the addition of a Δ -shaped covering made of two boards nailed together, and placed over the plant, to shed the water.

The old way of bending the bush over, staking down, and covering with leaves, manure, straw, or old carpet, has the disadvantage of affording attractive winter quarters for mice and other rodents, which, if



4. Wrap with twine. Tie every eight inches



5. Pack well around base. Tie low down



6. Cut off top and job is done

HOW TO PUT A STRAW OVERCOAT ON A ROSE BUSH—TOLD IN SIX PHOTOGRAPHS



A small evergreen before wrapping. English yew



First stand up boughs around the bush



Then lay boughs around the base

they are not watched closely, will destroy every bush in a short time. When covering any choice plants in this way scatter a handful of poisoned corn or grain in the mulch.

MATERIALS THAT COST NOTHING

Empty flour barrels and boxes are often used for covering shrubs. If you have these materials, first bank up the shrub well with good dry leaves, and, after placing the box or barrel, bank this also outside with manure to keep out the frost. If the barrel is in an exposed position anchor it with stakes and wires.

Old grain sacks are sometimes used, being put over the shrubs, tied in place, and then banked up with leaves or manure.

Eulalias and other ornamental grasses are often used in place of straw, to wrap rose and other bushes if they are where the sun

will strike them or in positions exposed to cold, bleak winds.

FUNDAMENTAL PRINCIPLE FOR EVERGREENS

All evergreens suffer in winter from warm weather and drying winds, which cause their leaves to evaporate moisture faster than it can be supplied by the roots, which may be in frozen ground. The yellow color of evergreens in winter is usually a sign of distress, and bronzing is a sign of imperfect hardiness or of willingness to drop the leaves for a while in order to withstand the winter. The best way to protect rare and costly evergreens is to plant them behind a windbreak or amid a group of other trees. The prevailing winter wind is usually from the northwest. All conifers, whether hardy or not, are glad to be mulched with eight or ten inches of leaves or coarse manure.

Everybody wants to grow the English

yew and Irish juniper because of their historical and sentimental value and because there is nothing quite like them, but thousands of these small conifers perish every year for the lack of a few minutes' work on each. Simply gather up the branches rather closely, tie them with strong twine, then cover them with evergreen boughs and tie with heavy cord. All you need to do to the Canadian or trailing yew is place a few evergreen boughs over it.

WHEN TO USE A WIND SHIELD

When an evergreen is so large that the preceding method cannot be used it pays to use a wind shield for newly planted trees and those of doubtful hardiness, especially in exposed situations. A wind shield may be made in the cheapest way, e. g. of rough hemlock boards and two-by-fours, eight feet at least in width, and tall enough to shade



Next put boughs on top



Now pass a rope around the whole



Tighten and tie the rope. Job done

HOW TO PROTECT A SMALL EVERGREEN—TOLD IN SIX PICTURES ON THIS PAGE



A wind and sun shield for large evergreens. Only for very exposed positions



A wind shield enables us to grow choice trees of warmer climes without a greenhouse



An unsuccessful and unsightly attempt to protect a rare tree

the tree well. This is set up closely to the tree on the side exposed to the southeast, and firmly braced. A few evergreen boughs may then be banked against the tree on the exposed sides. A better way is to use two of these shields, in the shape of a right angle, with the apex pointing to the south-



A common way of protecting rhododendrons from winter sunshine. Simply stand evergreen boughs among them

east. This, with the evergreen boughs, will usually be found to be sufficient, but I have seen three used on a very choice tree.

By using these wind shields every winter, one may grow the following evergreens, which are among the most famous and desirable species of warmer climes:

Cedar of Lebanon (*Cedrus Libani*) the deodar (*Cedrus Deodara*), the Himalayan spruce (*Picea Smithiana*, or *Morinda*), Bhotan pine, (*Pinus excelsa*), Sabines pine (*Pinus Sabiniana*), Coulter's pine (*Pinus Coulteri*), Spanish silver fir (*Abies Pinsapo*), Lawson's cypress (*Cupressus Lawsoniana*).

Some tall conifers, like the Chinese arborvitæ, are perfectly hardy, but are so formed as to break under heavy loads of snow. These may be simply tied in.

BROAD-LEAVED EVERGREENS

Rhododendrons, laurel, etc., are called "broad-leaved evergreens," as opposed to conifers or narrow-leaved evergreens, such as pines. As they present a much larger evaporating surface than the conifers it is absolutely imperative that all of them be protected from winter winds and sunshine in the Northern States.

Here in Rochester where Mr. John Dunbar gives them perfectly drained soil, with two and one-half feet of peat, and a situation that is naturally protected from north-west winds, all they need in the way of winter protection is a thick mulch of oak leaves. If, however, the beds have not

been so prepared, you would better mulch them and then cut some long evergreen boughs, stand them up among the rhododendrons and lay some over the leaf mulch.

The shrew mole burrows under the leaf mulch of rhododendrons and even in the peat. It gnaws the bark off the roots and



Easiest way to keep frost out of ground. Heap eight inches of well rotted manure over plant. *Berberis dulcis*, a South American barberry

eats the auratum lilies which make such a splendid show in rhododendron beds. The only way to "fix" him is by using plenty of poisoned grain.



The Chinese arborvitæ does not shed snow well, and branches break. Tie them in



A way to utilize home resources. Save old burlaps and bag your tender roses



Precious old box trees protected from winter killing by the use of cornstalks



Do you want your shade trees defoliated next summer? Now's the time to kill the rusty tussock moth by the hundred. Burn these leaves



Turn out every pleasant day this month, and scrape off all that rough bark on your apple trees, so the insects can't hide under it all winter



Look out for the brown tail moth! Prune off the webs now, and burn them. The caterpillars shed barbed hairs, and are a public nuisance

Winter Work Against Insects—By E. D. Sanderson, New Hampshire

CHEAP WAYS OF DESTROYING THEM WHOLESALE ON PLEASANT WINTER DAYS, ESPECIALLY THE BROWN-TAIL MOTH, A PUBLIC NUISANCE WHICH AUTOMOBILES ARE CARRYING FROM NEW ENGLAND TO NEIGHBORING STATES

IF A FEW of the warm, bright days during the winter months are spent in cleaning up the orchard much of the injury which may be done by insect pests next season can be forestalled.

First scrape the old bark from the trees, especially from the apples trees, for their scaly bark harbors a host of insects. Under the bark may be found cocoons of the codling

moth containing full grown caterpillars, unless some friendly woodpecker has drilled into their retreat and extracted the morsels. Cocoons of many other of the common caterpillars which feed upon the foliage are safely hidden beneath the bark, particularly at the base of the tree. For this work nothing is better than a good sharp hoe, though special "tree-scrapers" are made for the purpose. The tree needs the old dead bark removed as much as a horse does a currying, and it will respond equally well to good care. There is no danger in scraping off the old bark, so long as one does not dig into the living green tissue of the under bark. With the dead bark will be removed most of the eggs of the fall-canker worms on old neglected trees where that insect may occur.

After scraping the trunks of the apple trees it is well to wash them down with a strong soap or lye solution which will make a clean smooth bark. A rough bark is an invitation to all manner of borers, and trees well cared for are much less affected.

The holes caused by the decaying dead limbs or a large hole in the crotch of an old tree may harbor dozens of pupæ of such pests as the fall web worm. Clean out these holes and fill them with clay or cement. If the tree is worth standing room in the orchard it is worth that much attention and even if it be of little value itself, there is no reason why it should be allowed to stand as a refuge for the pests of the orchard.

The ring-like egg masses of the tent caterpillar can be readily seen by scanning the tips of the apple twigs. Pruning them off

now is much easier than destroying the webs after the eggs have hatched.

The white egg masses of the tussock moths may also be found on the bark or dead leaves.



See these cocoons of caterpillars hidden under the rough bark of a tree



Look over your apple trees now, and you'll find these shiny egg masses of the tent caterpillar. Easy to see now and to cut off and burn



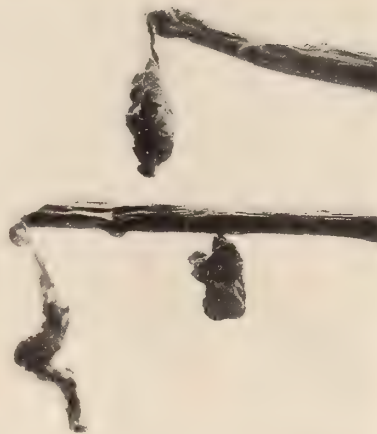
That old hole probably holds dozens of fall web worms in the pupa state. Clean it out, and fill it with cement. Every hole in a tree is a disgrace

Those of the white-marked tussock moth are covered with a white frothy mass, while those of the rusty tussock moth are laid upon a leaf in a single layer with no covering. They are particularly common on plum trees. The caterpillars of the tussock moths, with their long, black, horn-like pencils of black hairs projecting from the head and a tail-like brush at the tip of the abdomen, are among the most striking of the insect inhabitants of the orchard. Along the back are four thick tufts or brushes of white hairs from which the white-marked tussock moth secures its name and just a little back of these are two bright coral-red tubercles. Unfortunately, many of the hairs of these caterpillars are barbed and when falling on a sensitive skin produce an annoying irritation similar to that caused by the brown-tail moth of New England, and to which the tussock moths are first cousins. Often the tussock moths become so abundant on the shade trees of our eastern cities as seriously to defoliate them in midsummer, so that they should be combated on shade as well as orchard trees.

Dangling from the twigs of young trees are the twisted cases of the apple leaf-crumpler, which often does considerable injury to the young foliage. Each contains a small caterpillar resting preparatory to its depredations of the next spring. Pick them off and burn. Burn all the prunings from trees, young and old, for the eggs and winter cases of many small insects which would escape the untrained eye, such as plant lice eggs and the cases of the pistol case-bearer, occur upon them.

All dead or diseased wood should be cut out and burned as it harbors many of the small bark beetles such as the fruit-tree bark beetle, also known as the shot-hole borer from the fact that its work looks as if the limb had been hit with a charge of bird shot. Paint or wax over any stubs or cuts left upon the trees in pruning, for otherwise decay will set in and a ready entrance for borers permitted.

In New England the webs of the dreaded brown-tail moth should be pruned off and burned and as this pest is readily transported,



Winter cases of the apple leaf crumpler



Collect and destroy now these frothy egg masses of the white tussock moth, or the caterpillars may eat all the leaves off your fruit and shade trees

it will be well to be on the lookout for it in other eastern states. The brown-tail moth now occurs in Massachusetts, New Hampshire, and Maine, and before long will appear in New York and New Jersey. As automobiles are known to have carried the gypsy moth caterpillars for sixty miles northward it would not be surprising if those from neighboring states which tour New England in summer should carry the brown-tail caterpillars south or westward.

Often when plant lice have been abundant in an orchard the previous season or on melons or other vegetables near by, large numbers of the well-known little black-spotted red ladybird beetles will be found keeping each other warm beneath the bark or in a hollow at the base of a tree. Do not disturb them, if possible, for they destroy large numbers of plant lice and other small soft-bodied insects and should be protected.

Occasionally under bark or on a twig will be found a fluffy cottony mass, which if torn open will be found to contain numerous small white egg-like cocoons of the finest and whitest silk. These are the cocoons of small parasitic flies which lay their eggs upon various caterpillars and whose maggots live within the caterpillars, eventually killing them. During the winter and often in summer they are found in these cocoons, sometimes under an old shingle or board lying in the orchard. They too should be recognized as friends and not destroyed, for if we do not protect our insect friends we may sometimes do more harm than good in our indiscriminate "slaughter of the innocents."

Destroying one insect "in time" will not only "save nine" as goes the old saying, but even hundreds. Hence the value of this winter work.



1. Ferns as a border for a shady pond. How much better than the hard, straight shore line that is commonly allowed to show!



2. Pickerel weed at its best, showing how well this common native plant looks in cultivation. Flowers pale blue. *Pontederia cordata*. Needs checking occasionally

The Best Aquatic Plants—By Henry S. Conard, Johns Hopkins University

THE SHOWIEST AND MOST INTERESTING WATER PLANTS OUTSIDE THE TRUE WATER LILIES—THE GORGEOUS LOTUSES, THE STATELY PAPYRUS, THE CURIOUS WATER HYACINTHS, AND THE BRILLIANT YELLOW WATER POPPY

NO more stately plants adorn our gardens than the lotuses. Their great, circular peltate leaves stand three or four feet above the water on stiff slender stocks. The leaf is often a little funnel-shaped, so that it catches the rain in a silvery pool at the centre. The surface is never wetted. Then, as the leaves bow before a breath of wind, each empties its cup of water into the pond. The flowers stand as high as, or higher, than the leaves. They are eight to twelve inches across, with many broad petals which stand out in all directions.

The American lotus (*Nelumbo lutea*) is native from New Jersey to Ontario, Minnesota, and Texas. I have gathered leaves larger around than a wash tub and flowers

fully ten inches in diameter. The flower is creamy white or of a very pale yellow. It is not a vigorous plant in cultivation, but will do nicely if kept free from competition. It is quickly crowded out by its cousin, the pink or Indian lotus (often and wrongly called Egyptian lotus, *Nelumbo nucifera*), known to dealers as *Nelumbium speciosum*.

The last named species resembles the former in all respects, except color of flower and vigor of growth. The flowers of the

grace, dignity, and repose they are not equalled. No wonder they figure symbolically in the ever-repeated Buddhist prayer, "Om! mani padme hum!"—"O! the jewel in the lotus-flower."

The pink lotus is perfectly hardy at New



3. A "floating-heart" that resembles the water poppy but has smaller flowers. (*Limncharis nymphoides*)



4. Bur-reeds have interesting, brownish, globular, bur-like heads. For edges of ponds. Native. (*Sparanium eurycarpum*)

latter are larger than those of the former, and each petal is tipped with rosy pink. At the centre of the flower is a big yellow receptacle like an inverted cone, surrounded by innumerable yellow stamens. These great blossoms are among the noblest products of the vegetable world. They fairly glow in the morning sunshine. In



5. Parrot's feather, a finely cut plant for decorating vases in formal water gardens. Tender

York. It once grew in great profusion in a mill dam at Bordentown, N. J., where it was introduced by E. D. Sturtevant. The roots must be protected from freezing by means of litter or a sufficient depth of water.

Several varieties of the pink lotus have been produced in Japan, and are also available here. Rosea has deep rose-colored petals; there is also a double form of this. Shiroman is a nearly white, very double form. Kinshiren is also very double, and is of medium stature and free flowering. With this last kind I once had good success in growing it in a half barrel. It produced three flowers the first year, but I failed to get it through the winter alive.

Lotuses grow by long rootstocks, which

may run as much as forty feet in a season! They should be planted in very rich earth, under four to twelve inches of water. The bed should be well closed in by boards or a wall. Each year give the bed a good top-dressing of rotted manure. At intervals of three to five years the bed should be dug over and the plants reset. In autumn each rhizome produces one or more long tubers, much the shape and size of a banana. These are the parts to transplant. They are moved in the spring when they are starting to grow, say about the first of May. Some of the Japanese lotuses are less hardy than others, but none stand the winters as well as the pure species—*N. lutea* and *N. nucifera*.

THE STATELIEST AQUATIC "GRASS"

It is no wonder that the plant from which the ancients made their papyrus figured so prominently in Egyptian sculpture, for it is the stateliest "grass" in the world. (It is really a sedge.) This Egyptian paper plant (*Cyperus Papyrus*) is known to dealers in greenhouse plants as *Papyrus Antiquorum*.

It grows with its roots just submerged, and sends up stalks four to six feet high, with a tuft of fine grass-like leaves a foot long at the top of each stalk. It is like a huge umbrella-plant with extremely fine leaves. From long association it seems to belong beside the pink lotus. Being tender, it is grown in tubs. In autumn these are taken up after the first frost. The plants may be kept growing in a warm, well-lighted tank, or they may be stored in a cool place, provided they are kept wet. The papyrus needs no season of rest, and produces inconspicuous flowers.

There is a large kind of umbrella-plant (*Cyperus alternifolius*) which grows like the Papyrus and receives the same treatment. It is wholly a foliage plant. The common, little umbrella-plant of our houses (*Cyperus alternifolius*, var. *gracilis*) will also do equally well in the water garden. It is very easily propagated by division of the roots, or by planting the "umbrella" part of a leaf, with the stem cut off, in wet earth or in water. There are several varieties of this, differing in stature and in fineness of leaf.

From Florida comes another tall plant, *Thalia divaricata*, which deserves notice. It has broad, oval leaves a foot long. In character they resemble canna leaves, but they are borne on long stalks two feet above the water. The insignificant flowers come in open panicles on tall wand-like stems. The plant has a loose, easy, picturesque appearance. It grows about six feet tall, and will flourish well in a tub the size of a half barrel. It is wintered in a warm tank, or half dry, in a cool house.

THE WATER HYACINTHS

Of the plants necessary for the water garden, I should place next to the lotus the water hyacinth (*Eichhornia speciosa*). It makes dense beds of dark green foliage from which project large spikes of rich violet flowers. The plant floats freely on the



6. Water clover (*Marstelia quadrifolia*), a hardy, native plant that never flowers, but is worth growing

surface of the water, or the roots will gladly catch in the mud. I have seen it do equally well in one inch or in two feet of water. The leaves are from three to five inches in diameter, on stalks two to eight inches tall. The floating plants keep themselves up by making a big swollen air-tissue at the base of each leaf stalk, while rooted plants have taller and more slender stalks. The spikes are four to eight inches long, with closely set flowers, each two inches or more in diameter. The upper petal is larger than the others and has a bright yellow eye or spot.

The water hyacinth spreads very rapidly,

but may be easily kept in place by a floating wooden pen. Nail together some sticks or barrel hoops in the desired size and shape. They will float naturally, but should be fastened to stone anchors or to stakes driven into the bottom of the pond. The plant is tender and must be wintered in a warm tank.

THE BRILLIANT YELLOW WATER POPPY

The next plant which every one should have in his water garden is the water poppy (*Limnocharis Humboldtii*). I plant it in earth at the edge of the pond, or in a tub supported on stones in the deeper water, so



7. The showiest of aquatic plants outside the water lilies and victoria. The so-called "Egyptian" lotus



8. The water poppy (*Limncharis Humboldtii*). Brilliant lemon colored flowers, 2½ inches across

as to bring the roots near the surface. It sends out copious runners, two or three feet long, on which are many round, dark green leaves, about twice as big as a dollar. Over and among the shiny foliage rise innumerable brilliant yellow flowers as big as the leaves. They look a good deal like California poppies (*Eschscholzia*). Each flower lasts only one day, but the succession is never failing. I have had a dozen flowers at a time in one corner of a 4-foot tank. The water poppy is tender and must be kept growing throughout the winter in a warm tank.

SOME FASCINATING SUBMERGED PLANTS

Not a little beauty is added to the water garden by wholly, or almost wholly, submerged plants. What is more fascinating than to look down through crystal waters into waving tufts of green and purple foliage, fanned by the lithe movements of ornamental fishes? Nearly all submerged leaves are divided into thread-like lobes. So it is with the cabomba (*C. Caroliniana*). This makes luxuriant green plumes, growing in great bunches one to two feet long. It

is hardy in two feet of water at Philadelphia, and grows wild near Washington, D. C. It is the commonest plant sold for aquaria.

The bladderworts are also beautiful for under-water effects, especially the purple one (*Utricularia purpurea*). It grows in big loose tufts, extremely soft and fine. Each leaf bears a number of tiny bladders, which catch small insects for the nourishment of the plant. I have never seen this species in cultivation. The common bladderwort (*U. vulgaris*) and the inflated bladderwort (*U. inflata*) float freely in the water, usually near or at the surface. They have yellow flowers. All of the aquatic bladderworts require very still water, either in summer or winter.

FOR BORDERING PONDS

A good foliage plant for the border and for the decoration of vases and aquaria is the parrot's feather (*Myriophyllum proserpinacoides*). It grows in slender feathery plumes. The leaves are very many, finely divided, and arranged on all sides of the stem. It grows rooted in earth at the edge

of the pond, and spreads out in a broad feathery cushion of bright green. In autumn take in a few sprigs and put the ends in a bottle of water. It will grow all winter like an "air-plant" without earth, but will do better with some soil in the bottle. I know a shallow, sheltered pond of spring water near Philadelphia where it lives out of doors from year to year.

We may also have along the margin of the pond species of *Marsilea*. It is a water-fern, but does not resemble any other fern. The leaves float or stand erect and look like four-leaved clovers. It is a nice, harmless little thing. The European *Marsilea* (*M. quadrifolia*) is quite hardy in New England.

A really fern-like water-fern is the horn fern (*Ceratopteris thalictroides*). It is well known in European botanical gardens, but is rarely seen in America. The sterile leaves are divided into many small oval segments, making a feathery light green frond ten or fifteen inches high. When one of these leaves falls over into the water, a young plant springs from every axil and cleft. The fruiting fronds have filiform segments, with revolute margins. The innumerable spores germinate freely in water or on wet earth. It is in this way that new plants are best secured. The plant is naturally an annual, but it may be wintered in a warm tank. Set it out in shallow water (one to four inches deep) after warm weather is established.

Many curiosities may be added to the water garden, some of which also have a real place in the general effect of the garden. The golden club (*Orontium aquaticum*) is interesting for its yellow finger-like blooms, which come out soon after the ice melts. The spotted callas (*Richardia albo-maculata*) may adorn the margin here and there. The native pickerel-weed (*Pontederia cordata*) and the lizard's tail (*Saururus cernuus*), with flower spikes of blue and white respectively, are useful in some places. On the water's surface the floating moss (*Azolla*



9. The pale blue water hyacinth (*Eichhornia azurea*) does not have bladders like the common kind. It is floated by the extraordinarily long leaf stalks



10. The "water snowflake" bears thousands of small, beautifully fringed, white flowers. (*Limnathemum indicum*). Its hardy equivalent is our native *L. trachyspermum*



11. Tricker's Victoria (*V. Cruziana*, commonly called *V. Trickeri*). This species comes from Paraguay and requires much less artificial heat than *Victoria regia*. Sometimes self-sows in the southern United States and has been known to do so at Philadelphia. Details in September, page 72

Caroliniana), the duckweeds (*Lemna*), and the *Salvinia* (*S. natans*) are interesting.

Where the lawn dips to the water's edge a clump of marsh mallows (*Hibiscus Moscheutos*) will bloom. This is well known as an ordinary garden plant. The great open flowers, white with red centre, or pink, are often five inches across. They bloom very freely through the middle and late summer. Japanese Iris, too, in all their multiplicity of splendor, flourish near the margin of the pond.

It would lead us too far to speak of the riches that the borders of the pond will harbor. Only in passing can we glance at

two or three nooks beside our way. Here in a little bay a stately group of cat-tails (*Typha*), narrow-leaved and broad, is waving. Behind them a bushy brake of ferns (*Pteris* and *Woodwardia*), willows and the swamp magnolia (*M. glauca*) leads on into the woodland. This boggy place begins with the common arrow-leaf (*Sagittaria latifolia*). As it wades out into deeper water its leaves are as thin as grass, but they get broad and oval where their stalks are not at all submerged. Among the grasses, and the curious horsetails, rise the stalks of great lobelia (*L. syphilitica*), the cardinal flower (*L. cardinalis*), and

their hybrids. What is more brilliant than the spike of the cardinal flower? And beside them stand the aristocratic family of the flowering ferns (*Osmunda*)—noble ferns of great size and hardiness. Or perhaps in tropical luxuriance beside our *Nymphaea gigantea*, the bog is decorated with banana (*Musa Ensete*), the giant rhubarb-like leaves of the Gunnera (*G. manicata* and *G. Chilensis*), shoots of Paulownia (*P. imperialis*), cannas, and the like. On yonder rocky promontory is a ruddy Japanese maple (*Acer palmatum* var. *atropurpureum*) while in crevices of the rock the dainty maidenhair fern (*Adiantum pedatum*) is growing.

Fresh Vegetables All Winter—By Effie M. Barron, New York

HOW TO HAVE A CELLAR FULL OF "QUALITY" ROOT CROPS—WITH PLANTING TABLES THAT SHOW AT A GLANCE WHEN TO START EACH KIND, HOW TO GROW IT AND HOW TO STORE IT

[EDITOR'S NOTE—The fourth of the series of "Quality Vegetables for the Home Garden." Mrs. Barron was formerly teacher of cookery under the London School Board.]

THE ideal vegetable root is a well formed,—juicy, succulent one, crisp yet tender, of fine texture, without stringiness or sponginess and of high flavor.

If the skin looks dry and shrivelled and

the root looks "off color," if, when you pinch it the flesh seems soft and flabby, you may be sure the inside will be spongy, wooly, and dry.

Potatoes will sprout if they are kept where

light can penetrate. This sprouting changes the composition of the potato. The shoots feed upon the starch. This breaks up and decomposes the starch grains, making the tuber soft and watery, and unfit as



The straw covers three barrels of apples. The thing sticking up is a ventillator made of an old tin water pipe. The same method used with vegetables will do away with that "earthy" taste



A snug place behind a windbreak where an amateur at Doylestown, Pa. stores quality vegetables and fruits as shown in the first picture and described on page 185. Very cheap and keeps roots fresh, sound, and plump

food for man or beast. Light will cause the potato to take on a green color, and also to develop solanine. The presence of this poison can be detected by a peculiar bitter taste. If potatoes are allowed to freeze they will turn black, and although they may be greatly improved by thawing in cold water, they never cook perfectly.

All vegetable roots are affected injuriously for food by sprouting, which causes them to soften and rot.

These signs above mentioned will tell you whether vegetables are good or not without cutting them open or cooking them.

HOW TO GROW GOOD ONES

You cannot have quality root crops unless you have rich soil and grow the plants without a check.

If manure is used it is better to dig it down about a spade's depth some time before the planting is done, for if too near

the plants it makes them forked and straggly instead of smooth and well shaped.

THE BEST SOIL FOR EACH

Deep rich soil	Deep sandy loam	Light rich	Sandy
Beets Carrots Kohlrabi	Parsnips Potatoes Salsify Scolymus Scorzonera White turnips	Horse radish Jerusalem artichokes Winter radish	Celeriac Rutabagas

PLANTING TABLE FOR WINTER VEGETABLES (The dates are for New York)

Root	When to Plant	When to store
Beets	July	Oct.
Carrots	July	Oct.
Celeriac	Start early in March Set out end of April	Oct.
Horse radish	Feb. or March	Nov.
Jerusalem artichoke	Feb. or March	Nov.
Kohlrabi	Start plants late June Set out late July or Aug.	Nov.
Parsnips	Feb. or March	Nov.
Potatoes	May 1st	Late Sept. Oct.
Rutabagas	Late July or early Aug.	Oct.
Salsify	Early May to June 15th	Oct.
Scolymus	Early May to June 15th	Oct.
Scorzonera	Early May to June 15th	Oct.
White turnips	Aug. 1st to 15th	Oct.
Winter radish	Last July to Aug. 15th	Oct. Nov.

Celeriac or turnip-rooted celery is a variety of celery that has edible roots instead of leaves. It is not as choice a vegetable as celery but is easier to grow. It is used for flavoring soups and stews. It may also be boiled and served with a white sauce, like cauliflower. As salad it may be first cooked whole, like beets, or cut up into small pieces and used raw like radish. Or it may be boiled, sliced, and served with salad dressing. Good celeriac must be white.

Celeriac takes such a long season to grow to perfection that it must be started in a hot-bed early in March. Then transplant and later in the season draw up the earth round the roots to blanch them.

The red winter radish is milder in flavor than the white. The Half Long Black Spanish is a good one to grow because it is very hardy. It is rarely attacked by

disease or grub. It is, however, hot and strong in flavor, particularly in the centre. The outer part near the rinds is generally used for salads. Beets may be sown thickly, and as they grow to a size convenient to hold in one's hand, thinned out and the thinnings taken for immediate use as greens. The rest being left to grow for storing.

VARIETIES THAT STAND FOR QUALITY

Beets—From about twenty-six varieties that have been well tried the best, are found to be:

Dirigo. Is a dark red, of a fine smooth shape, very sweet, quickest grower, most satisfactory in every way.

Crosby's Early Egyptian. Is an early beet of fine quality but not quite so quick a grower as *Dirigo*.

Electric. Elongated oval shape, a brilliant red root, shines when washed, the brightest and sweetest beet.

Detroit Dark Red. Round, almost purple.



Salsify or "oyster plant" has a delicate oyster-like flavor. Easily grown and stored



Long Orange carrots (outside) and Danvers Half Long (centre). Better varieties described on page 185



Pinch a radish to see if it is young. An old one is soft and spongy, a fresh one firm and solid

Carrots.—Bellet's Early. A desirable shape, being uniform all the way down, almost like a frankfurter. It is a deep orange color, not red, and I think that this colored carrot has a better and more pronounced flavor than a pale yellow one. It will please the eye of the cook and is the best kind for serving whole on the table.

Early Scarlet Horn. Is of a strong flavor; good for soups and flavoring purposes.

Oxheart. Is a delicate flavored, round carrot suitable for growing in shallow soil.

Golden Ball. Is the smallest and earliest of all.

Parsnips.—Abbot's Improved. A fine white variety, the flesh being so fine and soft, it has been described as "porky" or "buttery"; without fibers or strings. The roots are smooth and well shaped.

Hollow Crown. Has a flat top, which gives no waste in preparation. It is a stronger grower than Abbot's Improved, which is inclined to rot in a wet spring, but not quite so fine in texture or rich in flavor.

White turnips.—Milk Globe, Purple Top, White Globe, and Snowball. All these are well shaped round turnips with fine white flesh.

Rutabaga.—Allen's Long Island Improved. Has yellow flesh, richer than the white turnip, low crown, very little neck, and is covered on the top with purple bloom. Fine grain and delicate quality. A good keeper.

Potatoes.—The best for growing and storing are Gold Coin, Potentate, Carmen No. 1, Crown Jewel, and Green Mountain. These are all white skinned varieties and good keepers. The best all round varieties are Potentate and Gold Coin. Green Mountain is most liable to rot in storage.

Salsify or Vegetable Oyster.—Sandwich Island. A good grower and fine texture. Large White French. Not so strong. Won't stand winter.

Kohlrabi.—Early White Vienna and Early Purple Vienna are good. White Vienna differs from the general varieties of white ones, being really white fleshed and not green. The great secret of obtaining good kohlrabi is to pick young, crisp, and tender. Large ones are coarse, woody, and take an unconscionable time to cook.

HOW TO KEEP ROOTS

All roots should be as fresh and juicy after being stored for the winter as when they were taken from the ground. There are three practical methods of storage.

1. Burying in the earth. 2. Heaping on the cellar floor. 3. Boxing them in sand.

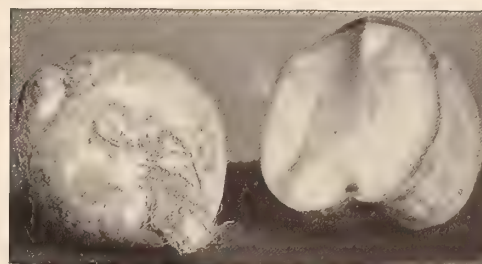
METHODS OF STORING AND KEEPING

Earth burial	Cellar floor	Sand	Left in ground
Beets	Rutabagas	Carrots	Celeriac
Carrots	White turnips	Celeriac	Horse radish
Potatoes	Winter radishes	Horse radish	Jerusalem artichokes
		Jerusalem artichokes	Kohlrabi
		Kohlrabi	Parsnips
		Parsnips	Scolymus
		Salsify	Scorzonera
		Winter radish	

The best method of storage is that which most nearly approaches nature's own,—earth burial. Some vegetables cannot be kept in any other way. In practice these conditions are met by providing a cool, dark place, good drainage, and air dry enough to prevent rotting, but not so dry as to cause shrivelling. A very good contrivance is a barrel either bottomless or with holes bored in the bottom to allow for drainage. Sink this in the earth and cover the top with straw. Don't bury roots or fruits in heaps or they will taste earthy. The pictures at the top of page 184 show how to avoid the earthy taste, by ventilating the barrels. A section of old tin rain water pipe extends from the bottom of the barrel up through the barrel and three feet in the air. The companion picture shows an ideal location for storing vegetables—high ground, good drainage, and shelter from the winter sun. Behind a windbreak the soil will freeze slowly and thaw out even more slowly. This windbreak is so placed that the sun hardly reaches this spot at all in the winter. The pictures were taken at 3 P. M. and show how little light can get through the trees,

Whichever way you store you must see that light is excluded or the vegetables will grow, and that the roots are protected from intense cold.

For storing on the cellar floor, first put salt hay on the floor. Heap the roots in a



The yellow-fleshed rutabagas are more richly flavored than the white sorts

pyramid-shaped pile of convenient size for getting at on the hay. Cover the pile with earth, which will also fill in the spaces between the roots. A final covering of hay over the earth to the depth of two or three inches makes all snug for the approach of early winter's cold. As the weather gets more severe, add more and more hay to prevent freezing.

Beets will keep only if buried in the earth. They rot very quickly. Beets planted the end of July, allowed to grow to about the size of a hen's egg, then lifted and buried in the ground will keep fairly well, but even then the chances are that they will lose much of their sweetness and become woody. Beets must be handled very carefully to prevent them from bleeding. Cut the top leaves off but not too close, about two inches from the root. The rootlets must only be shortened not cut off. Rough handling will break the skin and cause bleeding. If the beets lose their color they are not nearly so attractive.

Carrots will not stand early frost so they must be lifted and the leaves cut off. Do not shake the earth off as they are delicate and must be protected as much as possible. It is safer to store them in earth.

Celeriac must have all the leaves but the top ones taken off. If the top ones are removed the plant will devote its energies to making more and so the quality will deteriorate.

Parsnips are actually improved by a touch



White and black winter radishes. (Summer radishes in centre.) Sow in July; store in November



Keep summer radishes cold in ice box in water until you are ready to use them

of frost. They can be left in the ground all winter.

PREPARATION FOR THE TABLE

All vegetables should be put into boiling water to cook, whether they grow under or above the ground. If you want to boil a piece of meat, you do not put it into cold water, you put it into boiling water to seal up the outside and retain the juices in the meat. On the other hand if you wish to draw out the juices for soups, etc., you put the meat into cold water. The same principle holds good for vegetables. If you wish to use them for soups draw out the goodness by putting into cold water, but if you want to serve the vegetables as a dish, put them into boiling water.

New potatoes if unpeeled, however, are first put into cold water to draw the solanine out of the skin. Boil for ten minutes, quickly peel off the skin, and put into boiling water to finishing cooking. Some people actually advise using the water vegetables are boiled in as a foundation for soups, even if they are put into boiling water to cook, because "there is so much of the goodness of the vegetable in the water." If that is so, why not draw out more of it by putting into cold water! Try with beets, put them into cold water, boil them, now see the color of the water, a beautiful deep red. Now examine the beets, a whitish, stringy, and tasteless vegetable. The beet is a good illustration as it shows the result so well, but all other vegetables are effected the same way.

Beets, carrots, and parsnips all contain sugar, which substance is extracted from them by putting into cold water and bringing to the boil. The result is an insipid, flavorless vegetable entirely different from the properly cooked article. For this reason, also, these vegetables should not be peeled



Peel a turnip thickly. Cut inside the ring where the woody fibre ends

before cooking, except carrots when used for flavoring. The skin then must be scraped, not peeled off, as it is very thin, and in a new carrot merely needs rubbing, to peel it.

STEAMING THE BEST WAY

All vegetables that can be boiled can be steamed, and, in my opinion, that is the best method of cooking. The things are not plunged into the water at all. The steamer is placed on top of a saucepan of boiling water. All the juices and flavor are retained in the vegetable, and there is not the possibility of overcooking which so frequently spoils an otherwise perfect vegetable. Put beets, parsnips, carrots, celeriac, kohlrabi in the steamer unpeeled and the flavor and tenderness of these vegetables will be found unsurpassed by any other method of cooking.

Turnips have a thick, woody skin which must be removed. There is a line running all around the turnip showing clearly where to peel. This skin is indigestible, and



The Jerusalem artichoke, often said to be fit food only for cattle, costs twenty-five cents a quart in winter at fancy grocery stores in New York

when turnips are mashed it will remain in lumps.

QUANTITIES TO STORE

In making your plans for the storage of your roots for the winter try to so manage that you have a sufficient supply for six months. Do not have to go on "short commons" or without any for two or three weeks in the spring while waiting for the fresh crop to mature. Better have too many than too few. The quantities given below are intended for a family of four, allowing storage for six months.

In making these calculations medium-sized specimens only are taken as the basis. Large ones are not recommended. They are clumsy to handle and not economical in cooking.

Potatoes are a staple article of food and are used every day, of course, sometimes twice a day, and are often needed in cookery otherwise than as a plain dish. Two and a half barrels of them would probably be sufficient.

Turnips and carrots will be required, say, twice a week on the average as a separate dish. But they are essentially flavoring



Keep potatoes dark or they will sprout

vegetables, and, therefore, are in continual demand, in small quantities, for soups, stews, and the flavoring of gravies and sauces. On this account I have calculated as though there are three full dishes a week, the small amounts used as flavoring being counted as equivalent to one full dish. I should store one and a half barrels of each of these roots.

Beets and radishes are not used so frequently as the former vegetables. They have distinct flavors of their own that do not blend with others. They are served principally alone, and also in salads. One barrel of each would, I think, be sufficient.

Last on the list come the rarer vegetables, parsnips, kohlrabi, salsify, and celeriac. One dish of these a week is about all any one would care to have. The parsnip can hardly be called a rare vegetable, but is such a peculiarly flavored one that it is only liked now and then as a change. About two bushels of each of these roots will supply the table for the whole six months. In winter roots supply the place in a great measure of the more delicate summer vegetables. Their flavor is more pronounced than such vegetables as peas, beans, or cauliflower, and they are more suited for use in winter cookery, such as thick soups and made dishes.

Salsify is sometimes called oyster plant, as the flavor of the plant when fried closely resembles that of the oyster. When properly prepared for the table, it is a most dainty and palatable dish. It can be simply boiled after being scraped, washed and blanched, and when tender, served on buttered toast, with a good drawn butter sauce poured over, or, after boiling, mash, and make into small cakes and fry.

Scorzonera much resembles salsify, both in flavor and appearance, and the roots are prepared and eaten exactly the same way.



Buy horse radish roots, have them ground, and do your own bottling. Keep tightly corked

The Two Best Tall Lilies for November Planting—By A. Herrington

TEN THOUSAND LILIES FROM A DOZEN BULBS OF *LILIUM HENRYI* [THAT COST FIVE DOLLARS EACH TEN YEARS AGO—NOW FOR THE FIRST TIME IT IS WITHIN THE REACH OF ALL

I WAS glad to pay sixty dollars for a dozen bulbs of *Lilium Henryi* in 1896 because it had proven to be the best tall yellow lily in cultivation. The natural increase of those twelve bulbs gave us more than ten thousand flowers this year. The present season is perhaps the first moment



Ten thousand flowers in this bed from a dozen bulbs planted ten years ago!

when Dr. Henry's lily could be said to be within the reach of all.

We have other good yellow lilies (varieties of *Lilium elegans*, *Canadense* and *testaceum*), but they are smaller, not so well suited to general culture, and represent the cup and bell types, while *Lilium Henryi* is the best representative of the Turk's cap type and probably ranks among the four best lilies for the people. It certainly belongs with the best six in ease of culture, permanence, and the rapidity with which it will multiply in the home garden.

It is a native of China, and was discovered there by the celebrated botanical explorer, Dr. Augustine Henry, who sent it to Kew, England where it first flowered in August 1889, but weakly, as might be expected from newly collected bulbs.

A PROPHECY FULFILLED

At Kew I saw its rapid development and marked improvement each season. Among my lily notes I find the following written August 12, 1895: "*Lilium Henryi* now in flower at Kew, though comparatively new,

gives every indication that it will be one of the garden lilies of the future. It is the orange-yellow equivalent of our best autumn-blooming lily (*L. speciosum*), but has even greater stature and vigor. Some of the strongest plants are nearly eight feet high and have from twenty to thirty flowers and buds upon them. It is a grand and stately lily and distinct from all others."

Ten years' experience at Florham Farms, Madison, N. J., has shown that this was a conservative estimate of its worth. I did not take up our dozen bulbs until 1902, six years after they were planted. I then reset them in an oblong bed six feet wide and forty-five feet long, and though the bulbs were set two feet apart the increase has been such that when in flower this bed was one solid mass of beauty with more than 10,000 flowers. The plants varied from four feet to nearly eight feet in height according to strength and age of bulb and bore from twenty to seventy-five buds and flowers each. At the end of the bed shown was one spike that bore seventy-five flowers.

This lily is unquestionably the best hardy flower in the garden during the last of July and the early part of August, because it is so tall, stately and brilliant in color effect, yet graceful withal, the flowers being borne in twos and threes upon long pendent stalks branching from the main stem, which is thickly clothed with leafage its entire length. It flowers abundantly in wet or dry seasons and shows no sign of disease.

At first *Lilium Henryi* was called an orange-yellow *speciosum*, but except in the reflexed form of its flowers there is no other resemblance. It may better be compared with the tiger lily especially in size of flower and in the peculiar dark brown protuberant growths upon the petals that give a slight

spotty effect, but the tiger lily is a coarse flower in comparison. Henry's lily shows some slight color variations in different plants but the dominant color tone is a deep orange—or apricot—yellow.

The best tall red lily of the Turk's cap type is our native *Lilium superbum*. In good



Count the flowers on this one plant of *Lilium Henryi*! This species bears twenty to seventy-five flowers on the average. Orange-yellow



The rarely grown *Lilium puberulum*, a Pacific coast representative of *L. superbum* (*L. Humboldtii*)

soil it grows six to eight feet high and bears twenty to thirty orange-red flowers spotted with scarlet. The texture is so good that the flowers last considerably longer than most lilies. The leaves are arranged in whorls of ten to twenty, making it one of the statelyst of the formal lilies.

Both these lilies will do well in a sunny border but the best plan is to put them in beds where they will not be disturbed by annual digging at the surface, and give them a partial shade, simply to keep the soil cool. Mulch them both summer and winter. Be sure they have a loose, mellow soil with plenty of leaf mold and perfect drainage. Never let them suffer for water. Plant the bulbs six inches deep.

PLANT LILIES IN UNFROZEN GROUND

Order your bulbs as early as possible and while you are waiting for them heap the proposed lily bed with manure. Then you can plant lilies in unfrozen ground even during the first half of December if necessary.

Bulbs and Perennials for November Planting—By Harold Clark, ^{New York}

HOW TO HAVE HOME-GROWN CYCLAMEN THIS CHRISTMAS—AMARYLLIS AND THE BLUE AFRICAN LILY WITHOUT A GREENHOUSE—CHRISTMAS ROSES FROM A COLDFRAME AND SOME OF THE BEST "COOL GREENHOUSE" FLOWERS

THE lovely gladiolus, pictured on page 189, is a variety of *Gladiolus Colvillei*, an early-blooming species which every one who has a cool greenhouse should try. The florists get a high price for it in February and March. For Easter bloom the bulbs need not be started until December.



You can have cyclamen like this in your home window if you buy the bulbs in November. Better ones from seeds in seventeen months

The secret of success in forcing gladioli is to grow them cool. A night temperature of 45° to 50° is plenty warm enough. Plant them in boxes six inches deep, setting the bulbs about three inches apart each way. For potting soil use three parts of rotted sod, one part of well decayed manure and one-half part of sand. Make one-inch holes in the bottom of the boxes every six inches and put some broken pots, coal clinkers, or gravel in the bottom for drainage. Try The Bride, Ne Plus Ultra, Shakespeare, and May. With these you are almost sure to have success. Other varieties are more or less likely to "go blind," i. e. the buds fail to expand.

CYCLAMEN FOR CHRISTMAS BLOOM

I should never care to grow cyclamen from bulbs, because you get more and better flowers from seed. However, it takes fifteen to eighteen months from seed to flower and you ought to have a greenhouse. But if you buy bulbs now you can grow them at home with a good chance of getting flowers this Christmas. During November the seed and bulb merchants offer bulbs of cyclamen.

The common cyclamen is *C. latifolium* (*C. Persicum* of the catalogues), but if I had

to grow cyclamen from the hard, dry bulbs one buys from the seedsmen in November, I would rather grow the ivy-leaved cyclamen, *C. Neapolitanum*, because it will give more flowers, and though these may be smaller than the best florists' cyclamen grown from seed, they are quite as large as any home-grown cyclamen from bulbs. The ivy-leaved cyclamen is marked hardy in some catalogues. It is in Europe, but no cyclamen is hardy here. A good cyclamen should have six to twelve flowers.

Cyclamen bulbs are three or four inches in diameter and shaped like a flat turnip. Put them in 5- or 6-inch pots, according to the size of the bulb. Give them a good rich soil like that described for the gladiolus, plus



The best feathery white flowers for winter bloom, *Astilbe Japonica*, wrongly called "Spirea" by florists

leaf mold. A night temperature of 50° or 60° will suit them best.

LILY-OF-THE-VALLEY

One of the most beautiful bulbs is the lily-of-the-valley and it is also one of the hardest things to force. It takes from three to four weeks to bring them into flower, and your success will be measured by your ability to get good leaves with the flowers. This is next to impossible with pips that have been imported this fall and are forced for January bloom, but it is possible to secure leaves on pips forced later.

To have genuine success one must have a "hot box" in which to start them. The most desirable place I know is under a propagating bench, the bottom of which is boxed in to provide bottom heat for the cuttings

in the sand. Put some small pieces of boards on the heating pipes and set the pots or boxes on the boards.

The new pips arrive in the country from abroad late in October or early in November. As soon as they are received pack them in a box in damp sand and store them in a deep coldframe, pit, or cellar, where they can be easily gotten at. Some people insist that they should be frozen before forcing, but, in my experience, this is unnecessary. All that is needed is a place cool enough to keep them from growing.

When forcing small quantities I use 5-inch pots; for large quantities flats five inches deep. Trim the ends of the roots. The easiest way is to lay the bundle of pips on the bench and a single stroke of a sharp knife will do the work. Place the pips in the pots or flats ½ or ¾ in. apart and pack sand firmly among them. They should be just covered. Now put them in your "hot box," the temperature of which should be about 90°.

There must be plenty of moisture in the atmosphere, so that the pots will not dry out quickly. Watch the pots closely and water frequently. One drying will spoil all chances of success as I know from bitter experience. In about ten days or two weeks the leaves



The best large red flower of winter—amaryllis. Trumpets five inches long and wide

will have pushed up about two inches. Take them out now and put in a warm place—about 60° night temperature—and shade the tender shoots until they become accustomed to the sun's rays. In ten days or two weeks the flowers will have opened and be ready for cutting.

STRANGE AUTUMN-BLOOMING BULBS

The nerines are interesting autumn-blooming bulbs which also require a warm corner and are usually considered hard to grow. The commonest one is the Guernsey lily (*Nerine Sarniensis*). These send up naked stems eighteen inches to two feet long, which are crowned with a mass of flowers in different shades of red or pink. They are the showiest bulbous flowers to be found in the greenhouse during the period of September to November. These bulbs make their growth during the winter. As soon as you can get them put three or four in a 5-inch pot. For a potting soil use three parts of good strong loam, one of well decayed cow manure, and one of clean sharp sand. Put about one inch of drainage material in the bottom of the pot. The top half of the bulb must be above ground. The bulbs will not bloom if entirely covered. Give them a night temperature of 55° or 60° and keep them growing until May or whenever the leaves begin to turn yellow. Then dry them off gradually and when dried store under a bench or other dry place, setting each pot on its side.

Next fall you may see some flower buds coming out of the dry soil, in which case place the pots on the bench and water very carefully. You will be fortunate if you get flowers at this time. I should not expect any from the small bulbs one usually buys for three or four years.

About the time when they should begin their annual growth, scrape off about one inch of the surface soil with a sharp stick and replace it with some fresh rich compost. Never repot these bulbs if you can possibly avoid it, as they are very impatient of having their roots disturbed.

The best feathery white bloom in winter is that of *Astilbe Japonica* (pictured on page 188), which every florist wrongly calls "spirea" (*Spiraea* belongs to the rose family; *Astilbe* to the saxifrage family). The *astilbe* is quite hardy and a most desirable plant for the perennial border, where you can put it after forcing. Outdoors it sometimes grows three feet high, but the roots commonly imported for forcing usually grow only one to one and a half feet higher than the pots. The compound leaves are eight inches to a foot long and are so divided that they have an airy graceful appearance. Several pyramidal specks of very small creamy white overtop the leaves six inches. The *astilbe* is one of the most graceful plants in florists' windows during late winter and early spring.

FORCE BLEEDING HEART THIS WINTER

Every one knows the bleeding heart (*Dicentra spectabilis*), a favorite in the hardy border. It has many large heart-

shaped flowers of a rosy red suspended from the under side of the branches. In Europe it is quite the fashion to force this plant. It is seldom brought into heat before February or March, as it only requires about four weeks indoors, but November is the time to buy the roots. You get them from bulb dealers. They are grown in pots in European nurseries for this special purpose.

New York it is safer to grow it in a cold-frame. By this means you can be reasonably sure of having the flowers for cutting at Christmas. It has only a few leaves which are divided into six or seven lobes. They are dark green and rather uninteresting. The large white flowers, one and a half to two inches across, are very beautiful indeed. Just bring the potted plants indoors two



If you have a cool greenhouse why not grow this lovely gladiolus for Easter? The Bride, a variety of *G. Colvillei*, an early-blooming species and best for forcing

You might take up plants from the garden but you would doubtless get inferior results, because you would lose so many feeding roots. It makes a good cut flower.

A FLOWER OUTDOORS AT CHRISTMAS

The Christmas rose (*Helleborus niger*) blooms outdoors in winter, but north of

weeks before you want the flowers, and as soon as the blossoms are cut out go the plants. Is there anything quicker?

HEPATICAS TWICE THE USUAL SIZE

The pretty little European hepatica (*H. angulosa*—*Anemone angulosa* of the Dutch catalogues) has beautiful clear blue flowers,



An hepatica that is said to have flowers as large as a half dollar (*H. angulosa*), hardy and needs only two weeks to force into winter bloom

about one inch in diameter. It is hardy and grows about a foot high. They only need about two weeks of heat to flower.

All these perennials can be easily forced. In the fall the rootstocks store up enough food so that when potted for greenhouse cultivation it is necessary only to set them in a cool, dark place long enough for them to make sufficient root growth to supply the plant with moisture.

A low temperature—50° at night—is sufficient, in fact, better than a higher one.

Any good potting soil will suit them.

After these plants have been forced, grow them on, allowing them to make just as much growth as possible, and in April, when the ground can be worked, plant them in the open border. None of them, with the possible exception of the Christmas rose, will force well the second winter. The four perennials above mentioned are received early enough in the fall so that you can plant them outdoors if mulched.

THE GORGEOUS AMARYLLIS

The largest and most satisfactory red flower of winter is the amaryllis. The lily-like trumpets are four or five inches across, and come on stems eighteen inches or two feet high. November is rather late to start the common varieties, which can be gotten in October in the form of fresh bulbs grown in America from seed. But the best named varieties do not arrive from Europe until November, as the bulbs must be thoroughly ripened before crossing the ocean.

Pot amaryllis bulbs as soon as received, in a rich soil like that suggested for the nerines and allow them to lie dormant until about the first of the year when if they are good strong bulbs they will flower. The flowers come before the leaves and mark the end of the resting period. When the flowering period is over, the growing season commences. After all danger of frost is past plunge the potted plants out doors in coal ashes, soil, or anything else handy to

prevent the rapid evaporation of water through the pots. Water about once a week with weak liquid manure. When the leaves begin to turn yellow it is a sign the bulbs are ripening. Gradually withhold water and when the bulbs are ripe store them in a cool dry place until the flower scapes begin to push out of the soil.

One does not need a greenhouse to grow amaryllis, as all the growth can be made outdoors during the summer and then the pots stored in the cellar until they are ready to flower, which will be about January 1st.

THE BLUE AFRICAN LILY

The blue African lily (*Agapanthus umbellatus*) ordinarily blooms in summer but can be had in flower at almost any time. It has many long, narrow, dark green leaves, from among which rises a stem two or three feet high, bearing a large cluster of very handsome blue flowers. The easiest way to handle it is to grow it in pots or tubs which are stored in a light cellar or other dry place during the winter (enough water being given to prevent the leaves from falling); then put it outdoors during the summer and let it make its growth. Unlike the amaryllis it flowers with its leaves, which adds to its beauty. It is often forced in the early spring. The flowering season is controlled entirely by the resting period. The earlier you wish it to flower the earlier you dry it off.

Raising Your Own Tulips—By Luke J. Doogue, Massachusetts

AN INTERESTING EXPERIMENT FOR AMATEURS WHO LIKE NEW THINGS AND CAN FOLLOW SUCH EXPERIMENTS FOR SEVERAL YEARS—A METHOD BY WHICH THE PUBLIC GROUNDS DEPARTMENT OF BOSTON SAVES HUNDREDS OF DOLLARS

ALTHOUGH tulips are always considered high-priced bulbs, and although the prices of quality tulips are bound to rise sharply, the general public will never care to raise its own bulbs. It takes too

long and when you consider the ease and certainty with which bulbs in general bloom, it is cheaper to buy bulbs every year. In the Boston Public Grounds Department, where millions of bulbs are used annually, we have

demonstrated that thousands of dollars can be saved by growing our own tulips. And the amateur who likes to try new things and can follow up his experiments for three years will enjoy propagating his own tulips from offsets—not by seeds which takes several years and never come true.

If you have a lot of old bulbs, separate the offsets from them this fall and grade all your bulbs and offsets roughly into three sizes: The largest, or original bulbs, will give first-class flowers next spring, the larger offsets the year after, and the smaller, in two or three years, depending on the care you give them. Almost every offset, no matter how small, will bloom next spring, provided you detach it from its parent, and these flowers will be surprisingly large considering the size of the offset. But no one wants small tulips and the object of this article is to explain how to get first-class flowers by growing small bulbs to the largest size in the shortest possible time.

After sorting your bulbs, plant the three grades in separate beds. You need not use a dibble to plant the little ones. Sow them broadcast on a carefully prepared bed and cover them two inches deep with fine, mellow loam. If the soil for your beds is not rich



Making a bed of tulip offsets. The offsets have just been covered with two inches of loam. The bed will then be raked and a label will replace the stick



First-class flowers from small offsets grown for three years. Ordinarily these offsets are thrown away or amount to nothing. Keizerskroon and Pottebakker White

and porous, spade in a lot of well rotted manure and mix in plenty of coarse sand. Then rake the bed level. If you have only a few offsets you can afford the time to stand each bulb upright. If you are planting hundreds, just spread them broadcast.

In November, after a heavy frost, put on two or three inches of old manure for a winter mulch. The idea is to get the frost into the ground and keep it there with the covering. The freezing does not injure the bulbs, but the alternate freezing and thawing works havoc by rotting and breaking the roots.

In March or early April, or whenever the first signs of growth appear, remove the mulch gradually to allow the leaves to harden off before being exposed to the heat of the sun.

In late April or whenever the flowers begin to show color you should separate the whites, pinks, purples, and whatever other groups you desire. This operation cannot be per-

formed as easily and certainly at planting time as at flowering time. You can mark them with thread or yarn, but the best way is to raise each odd tulip with a trowel and place it with its proper color. In doing

place which you are absolutely sure is perfectly dry and has a free circulation of air. If you have to store your tulips in boxes you can save room by piling one upon the other, but you must be sure to leave a space of at least four inches between the boxes to allow the air to circulate. And don't forget the bulbs during the summer months. Look them over occasionally to determine their condition. This inspection will often save many bulbs, for in spite of the most perfect conditions rot will sometimes commence in some of the bulbs and unless this is discovered in time it will spread rapidly and ruin your most precious bulbs, to your heart-breaking sorrow.



First-class flowers from large offsets cultivated only two years. Vase ten inches high

this you must take plenty of earth with the bulb, driving the trowel well into the ground. Just as soon as you are certain of the color, cut off the flower. Never let it expand or the growing bulb will be checked by wasting a part of its strength on a small flower.

In May you must take up the bulbs and store them in a dry, cool, airy place to ripen. Let them stay in the ground until the leaves have withered, even if it makes an unsightly spot throughout the whole month of May.

Now comes the most important thing—the summer storage. All your work will be wasted if you do not attend to this properly. You can store them in boxes or on shelves or on the floor of the attic or other convenient



The smallest offsets cultivated one year produced these flowers. Though astonishingly large, compared with the bulbs, they are not full-sized



Bulbs and offsets after summer storage

The Lily of the Valley as a House Plant—By Clarence M. Weed, Massachusetts

THE QUALITY OF FLOWERS THAT CAN BE GROWN WITHOUT A GREENHOUSE—WHY NOT START NOW AND GROW HALF A DOZEN CHRISTMAS PRESENTS LIKE THESE?—GET THE "PIPS" IN NOVEMBER

THE books on floriculture generally discourage the amateur who aspires to grow the beautiful lily of the valley through the winter months at home without a greenhouse; nevertheless, in a house where there is a warm corner in which a uniform temperature of seventy-five to eighty degrees can be maintained, the lily of the valley may be had in blossom throughout the winter with very little trouble.

The "pips" or rootstocks of the lily of the valley are kept in cold storage by the florists' supply houses throughout the year. They may be purchased from any bulb dealer for about \$1.75 per hundred. These are retarded plants, i. e. plants in which the normal period of blooming has long since passed, so that it is possible to bring them into blossom in three or four weeks. It is purely a forcing process, the plants forming no new roots during the development of the leaves, and the blossoms depending entirely upon the nutriment stored up in the thickened crown and root stock. Consequently what is needed is an abundance of moisture and a high, uniform temperature, preferable ninety degrees.

You can grow lily of the valley near steam pipes, a furnace or even the kitchen range.

We have a hot-water tank in a closet with

a shelf at the top and keep the closet door shut. Also we grow them in a cupboard over the furnace against the chimney.

The "pips" generally come from the florists' supply house in bunches of twenty-



Of course you can't get the leaves to come out in a low temperature but—

five each. These should be fresh from the cold-storage room and should not be allowed to dry out. As soon as they are received unpack them and trim off the roots with scissors about a third of the way from the outer ends in order that the moisture may be absorbed readily and sent into the developing plant. Then put the pips in soil or sand or sphagnum moss in some receptacle where they may be kept thoroughly moist and at a uniform temperature. In my experience I have found it better to use a fair-sized receptacle than to attempt to force the plants individually in small jars.

Small portable window boxes of wood, zinc, or pottery are especially desirable in forcing the lily of the valley. Set the plants about one half inch apart and place the receptacle in some closet or corner where there is a uniform high temperature, and leave them for about two weeks or even longer if the situation is not too dark. Then bring them to the window during the day and at night keep them near a radiator or in some other warm situation. Under favorable conditions the first flowers will develop in three or four weeks, and others will continue to come on for two or three weeks thereafter. After the development is well begun keep the window box in the window or in a cool room. The flowers will then last much longer than if kept in too hot a place.

An excellent way to utilize these beautiful blossoms is to transplant them as they come into bloom into small attractive flower jars, placing several in each jar according to its size. They are not in the least injured by such transference and will continue to dis-

play their beauty for two or three weeks, making admirable pieces for adorning the dinner table as well as other situations.

The oblong box shown on this page is eleven inches long by four inches wide and four inches high. In it one can easily place a dozen or more lily of the valley pips. In one experience with this box I planted the roots December 29, and placed it in a corner of the room along which a steam pipe ascended, the heat from the pipe keeping the temperature of the soil at from seventy-five to eighty degrees, as was determined by thrusting down a thermometer. By the fifteenth of January some of the plants had developed beautiful racemes of flowers ten inches high and the others were coming along nicely. The box was then brought away from the warm corner into a lighter situation, where the plants continued in bloom for several weeks.

It is evident from this experience that by planting the pips early in December one could have the flowers just coming on at Christmas time. Few things would be lovelier or more acceptable as Christmas presents than attractive flower jars, such as one can get in abundance at the Japanese and other shops, with half a dozen of these lily of the valley plants just coming into blossom; and the fact that the plants had been brought into bloom by the giver should enhance the value of the gift.



An acceptable Christmas present. Home grown. Has personality in it. Not a store-bought trinket



—you can transplant the best ones like this. They will never know they were moved

A Trust Fund for the Maintenance and Education of Children

By Dr. Nathan C. Schaeffer

President National Educators Association and Superintendent Public Instruction of the Commonwealth of Pennsylvania

On February 17, 1905, upon the occasion of the unveiling of the statue of Frances E. Willard in the Capitol at Washington, the Hon. Albert J. Beveridge, of Indiana, paid a glowing tribute, not only to this great woman, but also to womanhood in general. In the course of his beautiful and eloquent remarks upon the career and character of Miss Willard he said: "To make the homes of the millions pure, to render sweet and strong those human relations which constitute the family—this was her mission and her work. And there cannot be a wiser method of mankind's upliftment than this, no better way to make a nation noble and enduring; for the hearthstone is the foundation whereon the State is built. The family is the social and natural unit. Spencer wrote learnedly of 'the individual and the State'; but he wrote words merely. The individual is not the important factor in nature or the nation. Nature destroys the individual. Nature cares only for the pair, knows in some form nothing but the family. And so, by the deep reasoning of Nature itself, Frances E. Willard's work was justified."

It is at this point that life insurance helps to reinforce the work of Frances E. Willard. Life insurance helps to sustain and perpetuate the family by saving the widowed mother from poverty and by creating a trust fund for the maintenance and education of children. It encourages sobriety, industry, and thrift by the periodic payments which constitute an essential part in almost every scheme of life insurance. Money that would be spent upon drink or other needless luxuries must be saved for the payment of premiums if the insurance shall not lapse or at least lose a part of its value.

This is a powerful stimulus to the young man even before others are dependent upon him. After he attains the dignity of fatherhood, the duty of providing for the present and future needs of his family becomes a powerful motive for industry, economy, and temperance; and a life insurance policy helps to strengthen this motive and to develop habits of thrift.

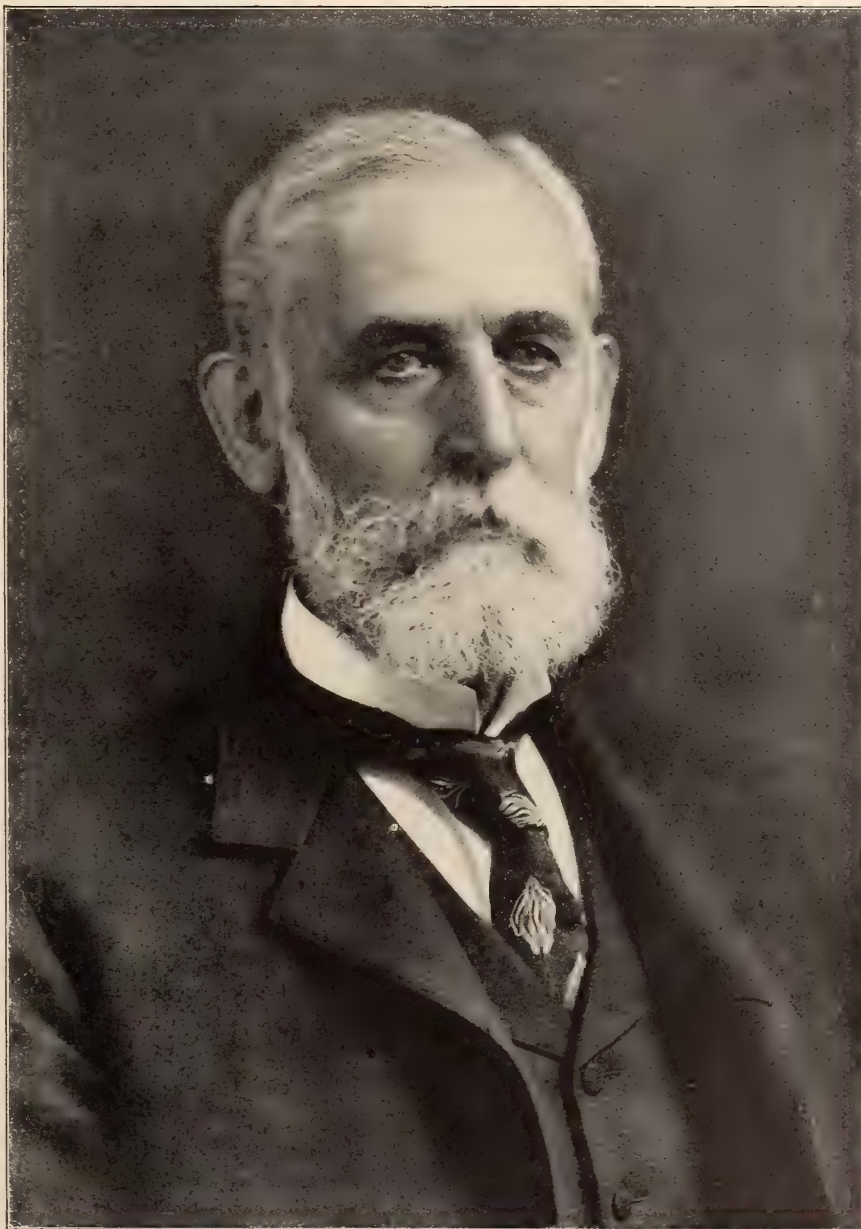
Since the family is the foundation of the

State, life insurance may be regarded as a patriotic duty. For it is the duty of the parent to prepare his children for citizenship, and this implies that he must give them a suitable education. Public and private schools of all grades and kinds, from the kindergarten to the university, have been liberally provided and lavishly equipped for the benefit of the rising generation; but when the father is called away in the prime of life,

the children must often-times leave school as soon as the law allows them to go to work, and their time and strength are exhausted in the mere struggle for bread. A life insurance policy would have enabled them to remain at school and to secure for themselves all that an education means in the way of future earning power and future usefulness. A nation's progress depends upon the proper education of its future citizens. Not the bank with its stored millions, nor the fortress with its frowning guns, but "the little red schoolhouse on the hill," is the real symbol of the strength and perpetuity of American institutions.

"The best is not too good for my children," said a clergyman not long ago; "and life insurance will help me to give them the best education that they will take." Policies which mature in ten, fifteen, or twenty years serve to provide the money for a course at college or at some technical or professional school.

The parent's love for his children should prompt him to make adequate provision for them in the event of his death. For the wage-earner and for the man who is dependent upon a salary this is a difficult problem. While his strength and his power to earn money last, he can provide for their needs, whilst his wife devotes her time and energy to the care of the home



U. S. SENATOR JOHN F. DRYDEN
President of the Prudential Insurance Co. of America

THE GARDEN MAGAZINE Advertiser

and to that nurture and training which a mother's love prompts her to give with the most anxious solicitude. When the day's work is done, and when the father is seated by the fireside surrounded by those whom he loves, the future sometimes rises before his mind. In vision he sees his family bereft of his care and his earnings. He sees his wife haggard and worn with work. She is struggling for bread, raiment, and shelter for herself and her little ones. He hears the cry of the youngest for that care which the mother finds it impossible to give. The older children are kept from school because they must either take charge of the dependent ones while the mother is at work, or they must themselves engage in the fierce struggle for existence. The shadowy forecast of an always possible future should drive him to make the provision which is rendered possible by life insurance in some one of the companies which have shown by years of careful management that they deserve the confidence of the public.

"Take no thought for the morrow," was the text selected for a sermon in favor of life insurance. At first sight it seemed a strange text, but in the Revised Version the language is, "Be not anxious for the morrow," and a life insurance policy in some company which has shown the strength of Gibraltar is one of the best means to drive away anxious thought for the future. Thus, when rightly interpreted, this passage from the Sermon on the Mount becomes a most cogent argument in favor of life insurance.

Time was when the most a good citizen and loving parent could do for his family, if the fear for their future distressed him, was to work a little harder, to strain himself under a heavier load, to add a trifle more each week to that little store of savings which were accumulating so slowly. It was ten, perhaps twenty, years before his savings could amount to enough to make even a meager provision for those he loves. At any time the failure of a savings bank, the collapse of a building and loan association, or an ill-advised investment of his own might sweep away the hard-earned savings of years, and destroy at one stroke the fruit of past and present labors and the foundation of future hopes.

There are teachers and clerks who have a fixed income. As soon as they see a way to secure the maintenance of their home and the education of their children they lose no time in making the necessary provision.

What keeps them from taking the necessary step is not heartlessness nor thoughtlessness, but the seeming hopelessness of being able to make adequate provision out of small earnings. Such need not despair. To them the various forms of life insurance are of supreme interest and importance. Worry is worse than overwork, and they can escape both by adopting the plan of insurance best adapted to their circumstances and their income.

Let us descend from the general to particulars. I prefer to take my illustrations from the old-line companies, whose premiums are fixed by contract, and cannot be increased at a time when one's power to pay has begun to wane. In passing I may say that an agent came to our town to organize a lodge with an insurance provision as one of its features; he

Endowment Policy. In one of the announcements the founder and President of the Company, U. S. Senator John F. Dryden, says: "This form of policy furnishes an excellent means of securing on the installment plan a fund wherewith to pay the expenses of a child through college, or while preparing for a profession, or during the period spent in acquiring the technical knowledge demanded in certain employments. Under other conditions, the fund secured through the policy may be used to give the child a start in business, or, in the case of a daughter, a dowry at marriage. Policies may be taken out at the birth of a child or at any age thereafter up to and including age fifteen, to mature upon the anniversary of the policy at ages eighteen, twenty-one, or twenty-five, and will be issued for sums from \$500 to \$5,000. When the

endowment matures, the amount of the policy with profits (or dividends) added thereto, will be paid to the child insured or to the parent or guardian." Not only is the amount of the policy with profits payable at the age stated in the contract, but in the event of previous death all premiums are returned with three per cent. compound interest. The very fact that the possibility of a higher or professional education is in store for him serves as a wonderful incentive to the boy while on his way through the public schools. If it be true that aspirations make the man, then surely the plan of insurance which fills the heart with aspirations is deserving of attention and careful study. Let us assume that a man says to himself: "If only I had a few thousand dollars laid aside for the wife and babies, I could work cheerfully and rest easily without fear of the future. But how can I hope to leave them even a

few hundreds? All I can possibly save out of my earnings is \$2 each week. It seems utterly hopeless to dream of building up a fund to maintain and educate my children on such slender savings." And such a case would be hopeless except that right here comes The Prudential Insurance Company, and says that \$2 a week entrusted to them will give the family \$5,000 of protection. Taking the age of the insured, for instance, at thirty years as a basis, the Company says: "Pay me \$98.85 per annum, somewhat less than \$2 per week savings, and I will guarantee you \$5,000 for your family, payable to-morrow in the event of death, if your first premium has been fully paid."

It would take the man over thirty years to accumulate \$5,000 by any ordinary plan of



left on the next train, saying, "Those fellows know too much." It was shown him by a simple calculation that if the assessments were not to be increased in the coming years, every member participating in the plan would have to live, on the average, more than 140 years. Moreover, I prefer to take my illustrations from some company in which I have no personal interest. My life insurance, for the benefit of my wife and children, was taken in other old-line companies, to the limit of my ability to pay the premiums, before my attention was drawn to this particular company. I refer to The Prudential of New ark, N. J., which has been likened to the rock of Gibraltar by reason of its solidity and its conservative methods of doing business. One of the policies is known as the Child's

savings. In every day of every month of these thirty years he is liable to die and leave only a fraction of a sufficient sum for his family. And on any day in those thirty years he may wake up to find his earnings gone, swept irrevocably away by some mischance of fortune. On the other hand, The Prudential Insurance Company puts to the credit of his family in the event of his death the sum of \$5,000 the day and hour on which he pays his first premium. It enters into a contract with him, by which it pledges the millions behind the Company to pay his family \$5,000, provided only he pays the premium equal to his \$2 a week savings, as agreed in the contract.

The provident man says to himself: "Suppose I leave my family \$5,000, how can I leave it so that it may not be speedily dissipated by injudicious use or diverted from the purpose for which it is intended? I should like this paid in installments sufficient to carry the family until the children are educated or self-supporting." This very terse requirement is already provided for. By one of the many plans provided by The Prudential Insurance Company, the money to be paid the family can be paid in yearly installments, thus carrying the children to and beyond the period when they become self-sustaining.

It should be remembered that the foregoing figures are based on a fair minimum of the possible savings of the average wage-earner. Yet if that assumed minimum were cut in two, a provision of \$2,500 can be made for the family under the same conditions, that is, on the basis of a saving of only \$1 per week. On the other hand, a man who can set aside \$5 per week can carry \$12,500 of insurance,

and thus provide a very comfortable income for the family he leaves behind. Moreover, it should not be forgotten that these figures are based upon the age of thirty years. At a lesser age the cost of insurance decreases proportionately. Above thirty the cost increases by slight advances for each year of increased age. Two cautions are necessary. In the enthusiasm which these figures create, a young man may be tempted to take out more insurance than he can carry. It is wiser to be satisfied with a moderate amount and to take increased insurance as one's earning power grows. On the other hand, procrastination increases the annual premiums and incurs the risk of a breakdown in health, making insurance impossible. Thus indecision in the choice of a plan may lead to disastrous consequences, whilst extravagance in assuming annual premiums is sure to end in worry and disappointment.

The first important result of Life Insurance is that it keeps the family together. How often when the bread-winner is taken the family is parted and partitioned among strangers. Sometimes, at the best, the children find shelter, more or less grudgingly given, among scattered relations. At other times they are sent to public institutions, to grow up among strangers, with a bare remembrance of the meaning of the word *home* and its mother-love as a dim and far-off dream. Almost every village has one or more examples of the home broken up and the family sundered and scattered. On the other hand, it is a thing to be thankful for that, as against one such broken home, almost every village and town in the land has many examples of the beneficent results of life insurance, the family still clinging together,

bound by bonds of loving intimacy, education fitting the children for complete living—the mother happy, even in her grief, that she can feed them, clothe them, guide them, keep them; and this all due to the providence and forethought of the husband. To her, mother and wife, he seems yet present. He still provides for the family, and this daily provision creates a new and binding tie between the husband who is still "the man of the house" and the widow who mourns him.

The greatest legacy any man can leave his children is a sound education. It is a trite saying that knowledge is power. The educated youth can go out into the world and face life's problems on an equal footing with the best of compeers. He can cherish and realize ambitions impossible to the uneducated or half-educated. He can not merely win the comforts that money will buy but he can also enjoy the things of the mind and the higher life. He can think the best thoughts of the best men as these are enshrined in literature, and he can think the thoughts which God has put into the starry heavens above him and into all nature about him—divine thoughts which are formulated into science as rapidly as man discovers them. A heritage of millions is not so valuable to the individual as the legacy of schooling which puts into his hands the tools with which he may carve his own fortune, the weapons by which he may achieve his own destiny. The individual, the home, the nation, owe the founders of safe and reliable methods of life insurance a debt of gratitude which words cannot express, but which hearts can feel and homes can show, and which the State should never fail to recognize in its protective legislation.



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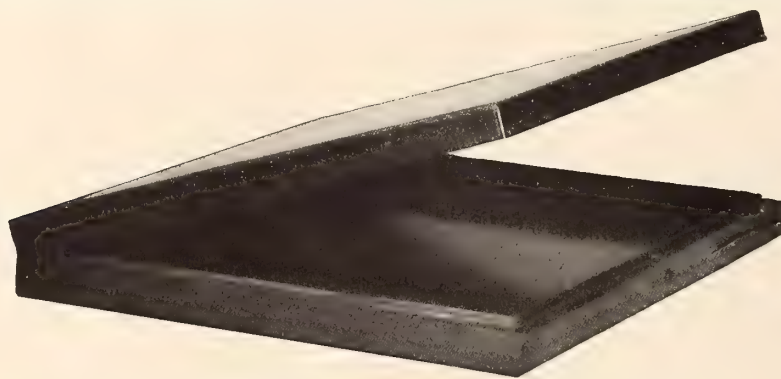
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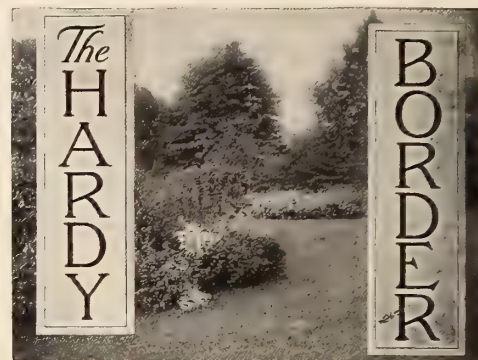
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Mulch your Hardy Borders and Bulb Beds in November

THE best mulch for beds and borders (if you can get it) is well rotted stable manure, because this can be spaded into the ground next spring to feed the plants when they need it most.

Cover your entire border—but not evenly. Two or three inches is enough. For large, lusty-leaved plants, such as foxgloves which will "damp-off" under a close, heavy covering, use a light covering of leaves held in place by branches or straw. Heap six inches of well rotted manure over plants which show nothing above ground in winter, e. g. peonies, and they will respond wonderfully. There are a few evergreen plants in the hardy border, mostly kinds that carpet the ground, e. g. golden-tuft (*Alyssum saxatile*), aubrietias, coral bells (*Heuchera sanguinea*), and the evergreen candytuft (*Iberis sempervirens*). Cover these with evergreen boughs instead of straw litter.

While it is not strictly necessary to mulch bulb beds it always pays because the flowers are better. Hyacinths are rather tender and although lilies can stand freezing you should try to keep the frost out of the ground entirely. To accomplish this you must put on six to twelve inches of leaves, with manure to hold them in place, sometime in November, preferably just after the first freeze. Never take any risk with early blooming or high priced daffodils.

HOW TO PROTECT CERTAIN CHOICE PLANTS

Most of the mahonias or evergreen barberries burn badly in exposed positions. A few evergreen boughs will protect them from winter sunshine. Certain deciduous barberries (*B. dulcis*, *stenophylla*, *Darwini*) should have a covering of leaves held in place by coarse manure or evergreen boughs.

Vitex Agnus-castus and *V. incisa* after being cut back should be well covered with leaves and manure. *Schizoneotus discolor*, *Sorbaria Lindleyana*, *Paliurus Spina-Christi* (*P. aculeatus*), *Daphne*, *Hydrangea quercifolia* and gorse (*Ulex Europæus*), all need covering as well as a mulch of leaves, while *Ligustrum Sinense*, *Cornus brachypoda*, *C. macrophylla*, *C. Kousa* and *Hovenia dulcis* require only a mulch of leaves.

Ilex opaca and *I. crenata* need covering if planted in exposed places.

Magnolias when young or newly planted need a good mulch of leaves and manure until the roots get well established in the subsoil.

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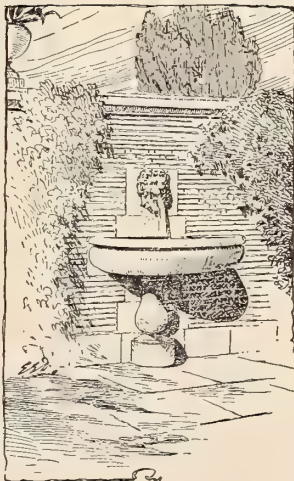
For other varieties as well as a complete list of other bulbs, such as Tulips, Hyacinths, Crocus, Lilies, etc., also Hardy Garden Plants, Seasonable Flower and Vegetable Seeds, etc., see

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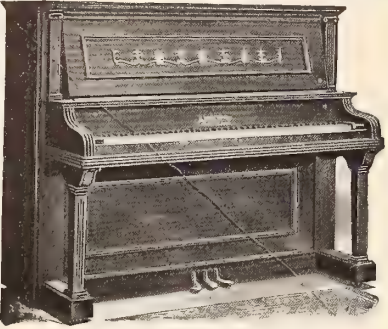
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An Excellent Way of Handling Bulbs for Forcing

SEVERAL years ago I tried an experiment in growing winter-blooming bulbs, which proved so successful that other flower-lovers may like to adopt the same method. After potting my bulbs—Dutch and Roman hyacinths, narcissi in variety, early tulips and crocuses—I had made in the garden a small pit, in which the bulbs were placed, and from which they were brought indoors at intervals during the winter.

The construction of the pit was of the simplest. A bottomless box was sunk in the ground to a depth of three or four inches—enough to make it stand firm. This left an enclosing board frame about nine inches high above the ground level. Inside this frame the earth was dug out to a depth of eighteen inches, and a layer of coarse coal ashes on the bottom, covered by an inch or two of dry sphagnum, insured good drainage. On this foundation the pots of bulbs were placed. The spaces between the pots were filled with sphagnum, and a layer of moss was laid over them. The box was then filled in with clean oat straw, tucked in with a warm blanket of old carpet, and instead of a glass sash a tight wooden lid was fitted on and held in place by pine boughs. All these precautions are necessary here, for the thermometer sometimes registers far below zero!

My pit was made and filled late in October; early in December it was buried under a foot of snow. Two weeks before Christmas the snow was dug away and the pit opened. I watched the process with some misgivings, but there, under their warm coverings, were my pots, the earth in them unfrozen, while the bulbs were pushing their noses above the soil.

A few pots of Roman hyacinths and polyanthus narcissus (always the earliest bulbs to flower indoors), also some Duc van Thol tulips were brought in, and the pit was closed.

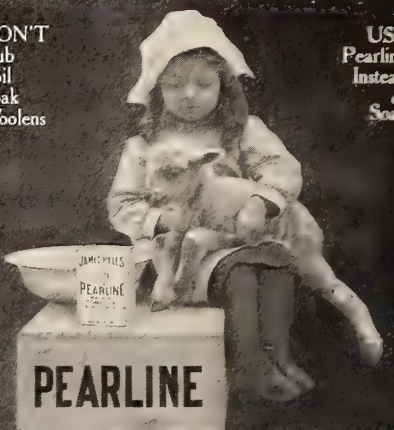
Placed in a southern window the bulbs quickly responded to warmth and the scant sunshine of those brief December days. Christmas day saw the hyacinths in bloom, and the paper-white narcissus greeted the New Year. The little tulips sprang up almost in a single day—strange, ivory-white things, and it was interesting to see the buds flush with rose which deepened to scarlet, while the leaves turned to clear pale green when placed under the light of a lamp in the evening.

But it was the Dutch hyacinth and the trumpet narcissus that made a phenomenal growth. Brought into the house at intervals of three or four weeks, from the middle of January on, the flower stems would shoot upward like Jack's beanstalk, and I have never seen hothouse grown bulbs show more massive spikes of bloom, or larger trumpets.

Since then I have grown many bulbs in the same way. Crocuses and snowdrops, the brilliant ixiads and sparaxis (too little known) fragrant freesias, the lovely *Gladiolus Colvillei* hybrids (so popular in England, so seldom seen here), Spanish irises, and many other bulbs may be as easily forced, and whosoever will may have, during the

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Stenanthium Robustum

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This remarkable hardy perennial is one of our best new introductions and of the showiest of all herbaceous plants. As the buds unfold in early August they are quite upright and of a light green tinge, gradually becoming whiter until at last they burst forth into a veritable snow-bank of drooping, fleecy bloom of purest white, the panicles often to 3 feet long. In September the flowers turn to shades of pink and purple. A vigorous perennial, from 5 to 8 feet when well established, and is absolutely hardy.

The Mountain Feather Fleece is of easy cultivation, and makes a wonderful show equaled by few plants of any description.

The illustration gives some idea of Stenanthium when in full bloom, but inadequately conveys the beauty of the delicate, feathered drooping flowers.

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Size 3. Small Strong Plants,
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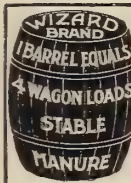
Size 3. Strong Plants,
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Hardy Garden Flowers No. 10

There can be absolutely no question that the Hollyhock is the stateliest of all tall perennials. Moreover no other flower of its commanding height and nobility of aspect has such extraordinary range of color. The single varieties ought to be lined up along every roadside in the land, and the seed should be scattered with a lavish hand to glorify waste places in the months of June, July and August.

But you make a great mistake if you buy only seeds of Hollyhocks because you never get the most refined forms and the purest colors from seed. If you want to enjoy the Hollyhock in all its wealth of bloom, in all the purity of its strongest colors, and in all the perfection of its most refined form you must buy plants of named varieties which represent decades of patient, loving, persistent breeding towards an ideal.

Plant single hollyhocks lavishly for bold mass effects, for they are more picturesque and less subject to disease than the doubles. Plant the double hollyhocks near at hand, where you can take the best of care of them and enjoy their perfection daily.

We can give you the formula of the Copper Carbonate solution which will absolutely prevent the Hollyhock disease that has been so disastrous, and thus overcome the one objection to this superb perennial.

Thus we can restore to our gardens the noblest tall perennial flower in cultivation—a flower that should be the main feature in the back row of every hardy border. No other tall perennial has so large a flower; none has so wide a range of color; few can equal it in stateliness of growth, and no other old fashioned flower of its height is so dear to the hearts of the people or so rich in home associations.

Single Hollyhocks—Fine large-flowered separate colors. Pink, light rose, white, crimson, red, light red, salmon pink and rose, \$1.50 per doz., \$10 per 100.

Large-flowered, all colors mixed, \$1.25 per doz., \$9.00 per 100.

Double Hollyhocks—Large-flowered in separate colors. White, yellow, pink, rose, salmon-rose, red, cherry-red and crimson.

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coldest winter, in town or country—for a small pit may find space, even in a city back yard—a perpetual window garden of spring flowers.

New York.

MARCIA E. HALE.

Kill the Cutworms in the Greenhouse

IN THE greenhouse the most common insect, passing under the name of cutworm, is the larva or grub of the May beetle. It makes its home in the sod and is especially numerous in old pastures—land that has not been tilled for several years. It is in the sod, gathered for use as potting soil or for filling benches, that the cutworms find their way into the greenhouse. To kill these cutworms lime is often mixed with the soil previous to its being taken into the greenhouse, but it takes so much to insure their destruction that the lime is often a serious detriment to the soil.

I found a method—more by accident than otherwise—of destroying all sorts of grubs in soils composted for greenhouse work. The compost heap had been made a few months before, but just previous to filling the chrysanthemum benches with it, I mixed tankage with the soil at the rate of about forty pounds to the cubic yard. In former years I had used bone meal, but this season my soil being rather deficient in nitrogen I used tankage. When mixing the tankage with the soil I found that it was badly infested with cutworms, and my intention was to apply lime before taking it in the greenhouses, but on examination four days after the mixing I found that the pile had generated enough heat to cook all the insect life.

Soil mixed with bone meal in the same proportion as given above will also generate heat, but unless the conditions are very favorable to fermentation sufficient heat may not be generated to kill all the insect life. This may be materially assisted, however, by having the soil rather moist and if favored with close warm weather the results will be all the more certain. A soil containing the above amount of either of these fertilizers will be rather strong for plants such as ferns and what may be termed the less gross feeding plants, but is excellent for general use.

Tankage is a product of the slaughterhouse, and is composed of blood and bone together with the intestines and other waste parts of animals, the whole being thoroughly dried and then ground fine.

When the cutworms do get into the greenhouse benches a good way to catch them is to bury small pots—2 ½-inch size—bottom downward in the soil at frequent intervals along the edges of the bench. They should be buried deep enough so that the top of the pot will be just a little below the level of the surface of the soil. The soil should be smoothed around the edges of the pot so as to present no obstruction to the grubs, so when they crawl around at night they will fall into the pots from which they are unable to crawl out. The pots should be visited every morning to destroy the grubs trapped. In this way I have cleaned benches that were badly infested with cut worms.

Elmsford, N. Y.

WM. SCOTT.



GRAPES FOR EVERY GARDEN

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Splendid smooth thin-skinned tomatoes can be grown in pots against the partition. The space between is utilized for strawberries, while the bed itself is filled with potted foliage plants for borders in the Spring.

When to Start Greenhouse Vegetables

There's plenty of time yet to start greenhouse vegetables—fact is, any time up to February will give you three to five months' lead on the outdoor garden. If your greenhouse were ready by the last of November, tomatoes planted from seed would ripen the last of March and continue to yield for a full four months. Five quarts to a plant is nothing unusual.

Strawberry plants bought from your florist will bear in nine weeks, a quart for every six or eight plants.

Those buttery string beans would give at least three crops. Then there's cauliflower, egg plant, melons and cucumbers, with lettuce, radishes and spinach grown in odd places as sort of temporary crops. So if you get right at building your greenhouse, there's a good bit of pleasure in store for you—but don't put it off a day.

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We will not over advise you into building more house than you really need, but will so plan that additions can follow in the least expensive, yet ornamental way. Above all, you can count on pleasant dealing.

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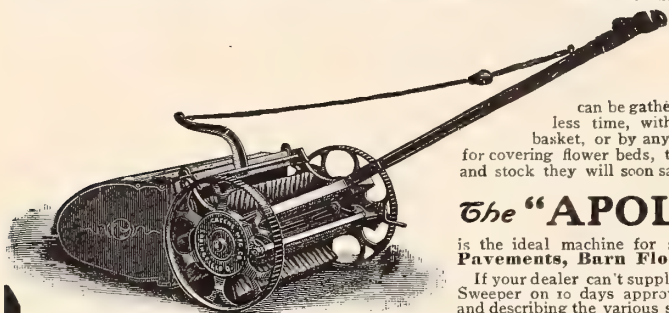


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can be gathered more quickly, easily and thoroughly, and in less time, with the "Apollo" Sweeper than with rake and basket, or by any other method. They will come in very handy for covering flower beds, tender roots, etc. Used as bedding for horses and stock they will soon save you more than the cost of the Sweeper.

The "APOLLO" SWEEPER

is the ideal machine for sweeping Lawns, Porches, Sidewalks, Pavements, Barn Floors, Factories, Warehouses, etc.

If your dealer can't supply you, write us, and we will ship an "Apollo" Sweeper on 10 days approval. Write for our Free Booklet, illustrating and describing the various sizes we manufacture.

THE GREENE MFG. CO., 34 Sycamore St., SPRINGFIELD, OHIO. (Good Canvassers Wanted.)

MENNEN'S

Borated Talcum
**TOILET
POWDER**



OUTDOOR CHILDREN

are healthy children. Send them into the open air, but don't neglect to protect their little hands and faces from the painful chapping and chafing which winter and outdoor sports inflict on tender skins. The best protection is the daily use of

MENNEN'S BORATED TALCUM TOILET POWDER

Put up in non-refillable boxes, for your protection. If Mennen's face is on the cover, it's genuine, that's a guarantee of purity. Delightful after shaving. Sold everywhere, or by mail 25 cts. Sample free.



Gerhard Mennen Co. Newark, N. J.
Try Mennen's Violet (Borated) Talcum Powder
(It has the scent of fresh cut Violets)

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For Christmas Presents are
ready to be examined at
our library sales-
room now

Arrange your Christmas plans
to-day. We are ready

RETAIL DEPARTMENT

DOUBLEDAY, PAGE & CO.

133 East 16th Street

Between 4th and 3rd Avenues

NEW YORK

SOUTHERN DEPARTMENT

Making Southern Lawns

USUALLY in our Southern gardens the lawn does not assume the dominant place that it does in the North. This is not because a good lawn cannot be had, but because of not knowing how to maintain one. A lawn needs little care, but it cannot be kept fresh and green without watering in the dry, hot spells. The following way is how the good Southern lawns are made.

About the end of April plow the land six inches deep, then harrow, to break all the clumps and cut all the small roots. Having done this, wait for the first wet spell, to sow the grass seed. The Bermuda grass withstands the hot summer best. It is fibrous rooted, and very green. After sowing roll the seed in. The best way to sow grass seed is by hand, thus ensuring a good even stand. Six pounds to the acre is the general rule. In extra shady spots, sow it more thickly. No fertilizer is used. In about ten days the



Bermuda grass makes the best summer lawn in the South. Sow English rye grass each fall in order to have a green lawn all winter

young shoots appear above the soil. Bermuda grass does not need as much mowing as the winter lawn does, and it makes a good sod, which is unsurpassed for tennis and croquet courts. A lawn of Bermuda grass can be kept to perfection during all the hot weather by watering it. It is better to do this in the evening, after the day's heat is over.

After the first frost the Bermuda grass dies down, but before this happens seed of the English rye grass for the winter lawn must be sown. It is not necessary to plow the land for this, but some prefer to do so. The first week in September, plow the soil about eight inches deep. Then harrow well. In all cases the soil must be without clods. Cotton seed meal is applied at the rate of one ton to the acre. Sow the English rye grass at the rate of one and a half bushels to the acre, and roll it in. It does not spread like the Bermuda grass. As soon as it is three inches



On Pages 2 and 3 OF Our New Catalog

we tell in an easy to understand way, just what the U-Bar Greenhouse is—how it differs from other greenhouses—why it grows more and better flowers—why so much more ornamental to your grounds, etc.

But first we want you to send for all the catalogs of all the other greenhouse builders—then send for ours—we want you to do it that way because only by contrast, by comparison can you really know, appreciate U-Bar strong points.

PIERSON U-BAR COMPANY
DESIGNERS AND BUILDERS
U-BAR GREENHOUSES
Metropolitan Building, 4th Ave. & 23rd St.
NEW YORK



Note the lightness of construction, the pleasing effect of the curved eaves

The Reason You Don't Have To Paint Amatite ROOFING

It's all in the top surface. We could show you better if you had a sample in your hands. But the enlarged diagram of Amatite shows it pretty well. The mineral surface you see there *takes the place of* paint and coating. It makes that extra expense unnecessary. It saves both time and money.

Lay Amatite and that is the *end* of your roofing troubles.

When you lay the ordinary kinds, your roofing troubles begin. You

AMATITE
PITCH COMPOSITION
WOOL FELT
PITCH COMPOSITION
WOOL FELT



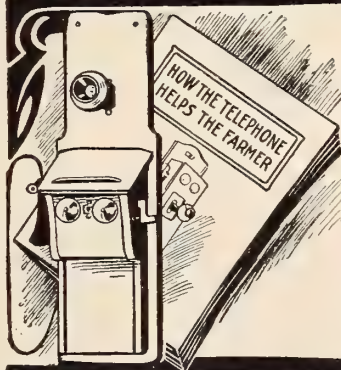
ENLARGED SECTIONAL DIAGRAM

have to paint or coat them every year or so. Their expense soon amounts to as much as the original cost of such roofings.

Amatite costs *less* than the other kinds to buy, and it costs *nothing whatever* to maintain. Amatite is the kind of roofing you want. The kind that is naturally waterproof. Amatite does not have to hide under a coat of paint in order to give good service. It is made to take the brunt of any kind of weather under any kind of conditions.

Send for a sample and examine the mineral surface for yourself. You will see at once that it is the only kind worth having. We will send a Sample free on request.

ADDRESS NEAREST OFFICE OF
BARRETT MANUFACTURING CO., AMATITE DEPT.
NEW YORK CHICAGO PHILADELPHIA CINCINNATI CLEVELAND BOSTON MINNEAPOLIS
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YOU WANT THIS FREE BOOK

Here is a book which will show you how easily and inexpensively you can put your home and business in touch with the outer world and its markets. It will show you how the telephone quickly pays for itself, and why it is more than a mere convenience for those who must stay in the house all day. It shows you, too, why

STROMBERG-CARLSON TELEPHONES are the only ones to be considered for farmers' lines. The book is crowded with practical information on the building of farmers' lines and the organization of farmers' companies. It goes to you from the greatest independent telephone plant in the world—the one that has been in the fore-front of the battle for independent telephone lines. Don't put it off—write to-day for booklet 180 D, "How the Telephone Helps the Farmer."

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Fall setting - time is here. Order now our hardy, thrifty, Pear, Peach, Apple Trees, Berry Bushes, Roses, California Privet—anything in the nursery line. Millions of plants and trees ready. Handsome catalogue contains prices, pictures and reliable spraying chart. It's free. Send now for it.

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Late or May Flowering Tulips

One of the Most Valuable Classes of Tulips.
We Offer Exclusive Varieties in Our Handsome Illustrated Bulb Catalogue of 1906.
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Sy-CLO

TRADE-MARK

The perfect material and scientific principle of construction of the Sy-CLO Closet entirely overcomes the unpleasant and unsanitary features that make the ordinary closet a menace to health. The Sy-CLO Closet does away with the necessary care that makes the common closet a household burden.

Study the sectional view of the Sy-CLO illustrated below. Notice the unusual extent of water surface in the bowl. No possibility of impurity adhering to the sides. That's why the Sy-CLO is always clean.

Unlike the ordinary closet, the Sy-CLO Closet has a double cleansing action, a combination of flush from above and a powerful pump-like pull from below.

The downward rush of water creates a vacuum in the pipe into which the entire contents of the bowl is drawn with irresistible syphonic force.

That's why the Sy-CLO Closet is called

The Closet That Cleans Itself

The sectional cut shows the *deep water-seal* that perpetually guards the household health by making impossible the escape of sewer gas, a subtle and often unsuspected poison.

The material of the Sy-CLO Closet is heavy white *china*, hand moulded into a single piece. No joint, crack or crevice to retain impurity. No surface to chip off or crack. Nothing to rust or corrode. Unaffected by water, acid or wear.

The name "Sy-CLO" on a closet guarantees that it is made under the direction and supervision of the Potteries Selling Company, of the best materials, and with the aid of the best engineering skill, and has the united endorsement of eighteen of the leading potteries of America.

Lavatories of every design made of the same material as the Sy-CLO Closets.

POTTERIES SELLING COMPANY,
TRENTON, N. J.

Valuable Booklet on
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with or without PEDESTALS
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Horsford's Autumn Supplement

of Bulbs and Hardy Lilies for Autumn planting. Ready last of August. Ask for it before placing orders.

FRED'K H. HORSFORD, Charlotte, Vt.

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CANNOT BE EQUALLED

Catalogue free

W. R. GRAY,

Box 6, OAKTON, FAIRFAX CO., VA.

CALIFORNIA GROWN BULBS

All Varieties—Unsurpassed—Catalogue Free

The Leedham Bulb Co., Santa Cruz, Calif.

high it is mowed for the first time, to get it in shape. It is very hardy, and withstands the frosts, which are very severe at times.

The winter lawn can be had for much less trouble. Rake into the summer lawn 500 pounds of cotton seed meal to the acre, then sow and rake in one bushel of English rye grass to the acre. An iron-toothed rake is used for this. The lawn procured by this method is quite as good as the one which needs so much time and labor. Where there are only a few acres to plant, this is the better in every way.

Under the trees, where the sun never strikes, the rye grass is not hardy. Mix two parts of English rye grass with three parts of white clover, to plant in the shady places. This lawn needs much more mowing than the Bermuda grass lawn.

The English rye grass, although a perennial does not come up the second year, so must be resown every autumn. But the Bermuda grass comes up as soon as warm weather comes and the winter lawn dies before the scorching summer sun. It cannot stand the heat of the South, but the cold does not affect it. Of course, when you plow up the Bermuda grass to plant the English rye grass, in the autumn, it will not come up unless it is planted again.

Georgia.

ROBERT A. WRENCH.

The Southerner's Reminder

THE Southern planting season for trees, shrubs, evergreens, vines, fruits, and hardy roses begins in November and reaches its climax in January.

Set out lettuce and cabbage plants that are to stay outdoors all winter. Sow lettuce and cabbage in coldframes. Set out asparagus roots and strawberry plants. Plant Dutch bulbs.

Make the winter lawn by sowing English rye grass; the sooner the better.

A Specimen Chrysanthemum

SUCH a plant as is shown on the cover design of this number of the GARDEN MAGAZINE represents a degree of cultural skill that is very often undervalued by those who visit the fall flower shows when the chrysanthemum is to be seen at its best.

Cuttings, from which full specimen plants like this are to be grown, are rooted in December and from that time, until November, the plants demand constant attention; otherwise they will fail to develop fully. Plants which are to be grown to a single flower may be started later in the season.

The perfect specimen plant is not only well and evenly formed, but the flowers should be evenly distributed over the entire surface, in not too formal a manner, and they must all be expanded at the same time. The specimen illustrated, which was exhibited at one of the shows at the American Institute of the City of New York, carried 150 flowers. These are trained into their final positions gradually, the shoots being tied to wire frames as they develop. Readers who are specially interested in growing chrysanthemums should read Mr. I. L. Powell's fully illustrated article in the May number of the GARDEN MAGAZINE.

What is a Hot-Air Pump?

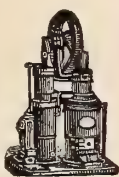
IT is practically a little stove with a pump attached, and any man, woman or child who can light a little fire in a stove, can run a Rider or an Ericsson Hot-Air Pump. A skilled engineer can pump a lot of water with an explosion engine, and a wind-mill will deliver it part of the time, but the Hot-Air Pump's superiority to either lies in its simplicity and its constancy, that is, no high-priced engineer is required and it is absolutely independent of the wind. When the wind blows of course a wind-mill is a cheap purveyor of water, but for a constant, dependable water supply a Hot-Air Pump is far and away the cheapest method obtainable. True it is an engine, but one of very low power, just enough for its particular purpose, pumping water. A double handful of coal, a little oil in a lamp, or a quart or two of gasoline will run a Hot-Air Pump for hours and deliver thousands of gallons. The hot air from this small amount of fuel is sufficient to move the piston, and when the fire is once started, especially when oil or gasoline is used, the pump is automatic; requires no watching and will run itself all day,—so much for cheapness and ease of operation.

At present more than 40,000 of these pumps are in use, their number has been gradually increasing, during the past forty years throughout the world. They are, in a way, an indication of the spread of civilization and those modern household necessities once so rare as to be luxuries in the country districts, *i. e.*, the bath, and running water in the house. But, you ask, are not these engines dangerous or likely to explode? Not in the least—explosion is a physical impossibility, no matter how brisk your fire, that is the difference between a steam engine and one worked by hot-air; the former is a machine of high, the latter one of low power. Again, the Hot-Air Pump is small, inconspicuous and portable. It can be tucked away in a corner of your cellar, in the barn or woodshed, no elaborate structure is required, such as a wind-mill tower. You simply lay a pipe to the nearest or most convenient well, spring or running brook and there you are, with your water delivered in abundance every day in the year. Well,—did we hear you ask the price? It is not much. Is \$108 high for a pump which will supply all your household water for a generation?

Lack of space prevents our telling you all the good points about a Hot-Air Pump. Will you write therefore to the office nearest your residence for our special catalogue U? It will be mailed you with our compliments and with pleasure.

Here are the offices:

35 Warren Street, New York
239 Franklin Street, Boston
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40 North 7th Street, Philadelphia
234 Craig Street West, Montreal, P. Q.
22 Pitt Street, Sydney, N. S. W.
Amargura 96, Havana, Cuba



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Our bulb catalogue, containing the largest and most varied assortment of high class bulbs in America, free. Send for it. J. M. THORBURN & CO., 33 Barclay St., through to 38 Park Place, New York.

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Buy a machine that does the work right—that cleans its strainer automatically with a brush, mixes liquid mechanically so that foliage is never burned, but gets its due proportion.

EMPIRE KING, and ORCHARD MONARCH

do these things. They throw finest spray, are easiest to work and they never clog. You ought to know more about them. Write for instruction book on spraying, formulas, etc. Mailed free.

FIELD FORCE PUMP CO., No. 48 11th St., ELmira, N. Y.



Country Home of Rev. J. Wilbur Chapman, Winona Lake, Ind. Supplied with water by Kewanee Water Supply System.

WATER FOR YOUR COUNTRY HOME

YOU may have all the conveniences of a city water supply in your country home. You may have an abundant supply of water delivered under strong pressure to all the plumbing fixtures in the house, to the hydrants in the garden, lawn, stables—anywhere. Besides you may have ample fire protection for your buildings. This is all accomplished by

THE KEWANEE WATER SYSTEM

The **Kewanee** System is easily explained. It consists simply of having an air-tight steel **Kewanee** tank located in the *cellar*, buried in the *ground* or placed in a special *pump-house* provided for its protection. Water from your own well, cistern or other natural source, is pumped into this tank. When the **Kewanee** tank is two-thirds full of water, all of the air which originally occupied the entire space, is compressed into the upper one-third. At this point there will be a pressure of sixty pounds exerted on the water. By installing the right size of tank you may be sure of an abundant supply and there will be ample pressure to deliver the water to the highest plumbing connection or most distant hydrant.

THE KEWANEE PNEUMATIC TANK—

—Rests on solid ground where it can do no damage. It is unexposed to the extremes in weather, and insures a frost-proof water system and provides water of the right temperature during all seasons. It is made of steel and will outlast a dozen overhead tanks. No attic tank to leak and flood the house. No elevated tank to freeze or collapse. No bursted or frozen pipes.

The illustration above shows the country residence of The Rev. J. Wilbur Chapman. He writes: "We are perfectly delighted with the **Kewanee** System of supplying our country house with water and I wish again to thank you for sending me so fine an outfit."

Over 5000 Kewanee Outfits now in successful operation.

Write for catalogue No. 16 which explains everything and tells where **Kewanee** outfits may be found in your state. It's free if you mention GARDEN MAGAZINE.

KEWANEE WATER SUPPLY CO.

DRAWER S, KEWANEE, ILL.



The Only Line of High Grade Tools Under One Trademark



KEEN KUTTER TOOL CABINETS

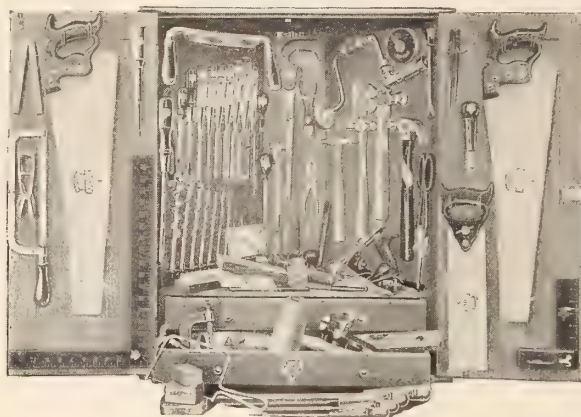
Almost every day some sort of a tool could be used to advantage around the house, and oftentimes it is absolutely necessary to have tools at once, to make repairs. The best way to buy them and the most convenient way to keep them is in a cabinet.

are the only ones made containing a complete set of high grade tools under one name and trademark. Every tool is a KEEN KUTTER, which means it is the highest grade and fully guaranteed. No cheap tools.

Ask us to send you handsomely illustrated Catalog showing our complete line of KEEN KUTTER Cabinets; then select the cabinet containing the assortment of tools you want and your dealer will supply you. If not, write us and give us your dealer's name.

This booklet contains cabinets from \$8.50 to \$50.00, according to assortment of tools. *A postal will bring it.*

SIMMONS HARDWARE COMPANY, St. Louis and New York, U. S. A.



HEN AND PIGEON MANURE

H. C., Md.—Hen and pigeon droppings are much stronger than ordinary stable manure. By mixing them with about ten times their bulk of stable manure there will be no danger of burning the plants. There are no particular plants for which they are better adapted than is stable manure.

PLANTING STRAWBERRIES IN THE SOUTH

B. W., N. C.—In the South strawberries can be planted any time during the fall, winter or spring when the ground can be worked. After planting give each a mulch—a forkful of manure around each plant. This will protect them from the cold and will also fertilize the ground. Fall planting is to be preferred.

POISON FOR MICE

H. M. G., Ohio—The mice which are destroying your bulbs can be killed by poisoned food. Soak sweet corn kernels in water in which strychnine has been dissolved. The water must be hot to dissolve strychnine. Allow corn to soak twelve hours, then dry the corn and place where the mice are working.

WIREWORMS ON CARNATIONS

H. W., New York—The carnation plants submitted are infested with wireworms, a very troublesome pest. A satisfactory method of eradication is to place pieces of carrots on the soil infested and remove them each morning with the wireworms. Kill the worms by dropping them in boiling water or kerosene. The wireworms are very fond of carrots.

RHODODENDRONS IN CITIES

B. J. W., Penn.—Rhododendrons, like conifers, do not succeed in cities because there is too much coal smoke and dust in the atmosphere which clogs the stomata or plant's breathing pores. If you are on the outskirts of the city they may do well. See Mr. Dunbar's directions for preparing the rhododendron bed in the July GARDEN MAGAZINE, page 334.

DIVIDING LILY-OF-THE-VALLEY

H. M. S., New York—The best time to divide lily-of-the-valley (*Convallaria majalis*) is in the fall—October or November—after the other roots have ripened. You can tell when they ripen, because the leaves turn yellow and drop. After setting the clumps in the new position they will come through the winter much better if they have a mulch of loose litter or something of that sort.

PROPAGATING IVIES

H. F. K., New Jersey—The English ivy (*Hedera Helix*) may be propagated at any time of year by cuttings of half ripened wood. The woodbine (*Ampelopsis quinquefolia*) is grown from hardwood cuttings taken in September or October. The Boston ivy is best grown from seeds sown under glass or outdoors as soon as ripe. It may also be increased by cuttings of green wood made in May or June inserted in a propagating bench which has a gentle bottom heat.

PROPAGATING JAPANESE ANEMONE

C. D. J., Mass.—Late November or December is an excellent time to propagate the Japanese anemone (*Anemone Japonica*). Cut the roots into pieces one-half to one inch long and sow them in a seed pan or flat, just as if they were seeds. Use a good seed soil. Or they may be laid in rows in sand in a propagating bench. The former way is preferable. As soon as roots are being freely produced pot off, putting them in 2-inch pots. Shift as necessary and plant in the open ground in April in nursery-rows, putting the young plants a foot apart.

"Everyone Exclaims About Our Lights!"

"The Lamps are splendid. Everyone exclaims about the amount of light they give," writes Mrs. W. T. Reese, Tiffin, Ohio. "My city friends visiting here say they are as good as gas. In fact, my home is now considered the best lighted house in the county. Why, when we go visiting our neighbors of an evening it is hard to keep from exclaiming about the poor light they have!"

THE Angle Lamp is the *new* method of burning common kerosene oil, and is as different from the ordinary lamps in *results* as it is in *appearance*. It makes common kerosene the best, the cheapest and the most satisfactory of all lighting methods. Safer and more reliable than gasoline or acetylene, yet as convenient to operate as gas or electricity.

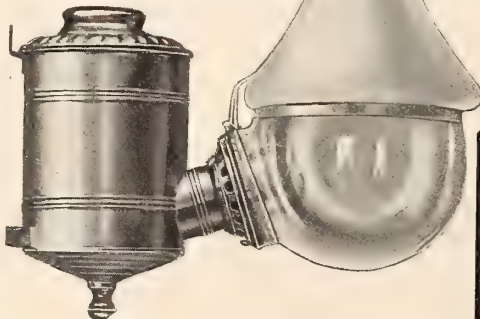
The Angle Lamp

is lighted and extinguished like gas. May be turned high or low without odor. No smoke, no danger. Filled while lighted and without moving. Requires filling but once or twice a week. It floods a room with its beautiful, soft, mellow light that has no equal. And yet the lamp *actually pays for itself*. For while the ordinary round-wick lamp, usually considered the cheapest of all lighting methods, burns but about five hours on a quart of oil, The Angle Lamp burns a full sixteen hours on the same quantity. But send for our catalog "41" explaining the new principles employed in this lamp, and for our proposition for selling on

30 DAYS' TRIAL

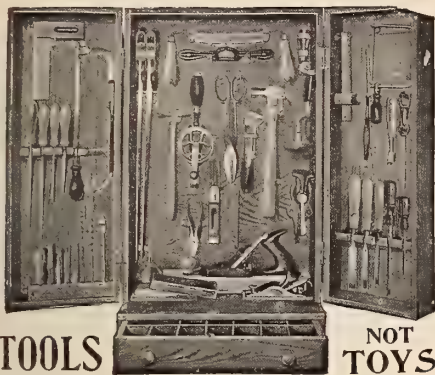
Wouldn't you like to have your home admirably referred to by your neighbors as "the best lighted house in the county"—if you *knew* such a light would cost so *much* less than your present system as to pay for itself in a few months' use? Then write for catalog "41" describing The Angle Lamp fully and listing 32 varieties from \$1.80 up. It is free for the asking.

THE ANGLE MFG. CO., 78-80 Murray Street, NEW YORK



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Full size tools; best quality; fully warranted and sharpened ready for use



\$10 to \$25

Also assortment of nails, screws, tacks, screw eyes, etc., in drawer. All cabinets made of polished quartered oak, and fitted with brass hinges, cylinder lock, and special brass tool fastenings. Write for Illustrated Catalogue of Tool Cabinets and Work Benches.

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Amateur and professional horticulturists alike will find this work invaluable. It is based upon expert knowledge and experience; and the pictures are at once practically helpful and very beautiful. 200 photographs, mostly by the author.

Uniform with "How to Make a Vegetable Garden" and "How to Make a Flower Garden."

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IN AMERICA



THE WORLD'S WORK
FARMING



THE GARDEN
MAGAZINE

DOUBLEDAY, PAGE & CO. NEW YORK.

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Rose and Peony Specialist

FAIR LAWN, N. J.

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Grows in your cellar, for your winter table.

Tender, red rhubarb is delicious for sauce or pies—tastes uncommonly good in mid-winter. You can grow the choicest plants in your cellar—the darker the better—without bother or care.

I supply the roots and tell you how. You have rhubarb to eat in 4 to 6 weeks.

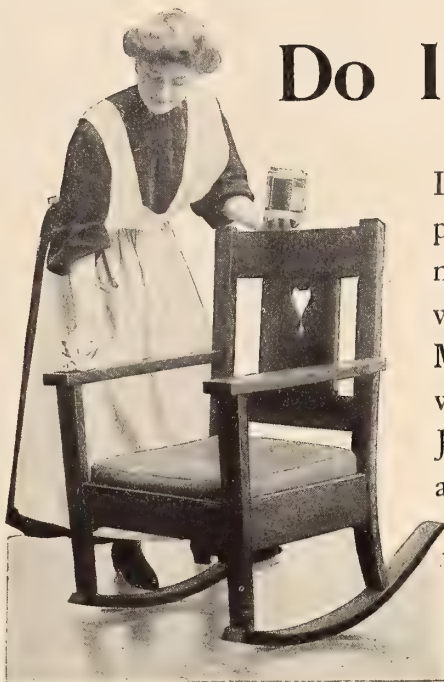
Pick fresh, crisp stalks for the table, in coldest weather all winter. Beats canned fruits or preserves.

Clumps ready for growing, 25c, each; 6 clumps (enough for an average family all winter), \$1.25.

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"A Complete Finish and Polish for All Wood."

For Furniture, Woodwork and Floors

Sold by all dealers in paint — 10 ct. and 25 ct. packages and larger size cans.

It produces a beautiful, lasting and sanitary finish and polish to which dirt and dust will not adhere. It will not show scratches, blister, peel off or crack. Fine for linoleum, oilcloth and leather.

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We save you money by telling how old, discarded, poorly finished furniture can be made serviceable and stylish.

Write at once for 48-page color book, regular 25c edition, that gives all this information. Sent **free** postpaid for a limited time. Mention edition G.M.11



This Book Free

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Roses Write to-day for our art booklet "How to Grow Roses" and our New Floral Guide—FREE.
CONARD & JONES CO., Box P, West Grove, Pa.
Growers of "the Best Roses in America."

STARK TREES For 81 Years have maintained their record—**HIGHEST QUALITY, LOW PRICE.** Free catalog superb fruits—King David, Bl'k Ben, Delicious apples, etc.—**STARK BRO'S, LOUISIANA, MO.**

Valuable Wood

Lumber is becoming so expensive that in many parts of the country it is now cheaper to build with concrete, stone or brick than with wood. All the more important is it that property owners should preserve the wood they have—it will be costly to replace.

The only known way to preserve exposed wood is to paint it and keep it painted. There is a choice in paints: the kind that cost least, look best and wear longest are based on **OXIDE OF ZINC**.

A Suggestive Pamphlet, "Paint: Why, How and When," **FREE** to property owners.

The New Jersey Zinc Co.

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We do not grind zinc in oil. A list of manufacturers of zinc paints sent on application.



HICKS TREES

4 to 6 in. in diameter, 16 to 30 ft. high
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HANDLING MONTERETIA

L. M. B., Mass.—The montretias (Tritonia) are usually handled the same as one treats gladiolus, but on several of the estates in Lenox, Mass., they have proved hardy if given a mulch.

REMEDY FOR WIREWORMS

J. D. H., New York—To rid your land of wire worms, give it a dressing of gas lime, using it at the rate of twenty bushels of lime to the acre. Gas lime may be secured at any gas works.

GOURD FLOWERS

J. D. H., New York—The flowers of the gourd are monœcious; that is, two kinds of flowers are produced on the same plant. You have been watching the staminate flowers. The pistillate flowers are short-stalked, with three 2-lobed stigmas and a hairy ovary, and do not have showy petals like the staminate flowers.

EXTERMINATE WITCH GRASS

B. L. S., N. H.—If you have a small piece of ground spade it over, taking out each piece of the witch grass roots which you can find. If it is a large piece of ground plant it to some hoed crop—corn, for instance. Thorough cultivation for two years should do it.

RED SPIDER ON CARNATIONS

A. F. C., New York—The foliage of carnations which you sent us is badly infested with red spider. The most effective remedy for this is to syringe the plants with water in a fine spray, and with considerable force, the object being to knock him off. In severe cases kerosene emulsion has been used, but this is seldom necessary.

WHERE LILIES SUCCEED BEST

C. F. P., Pa.—All the liliums prefer a light rather than a heavy soil, and it must be well drained. A shady situation is better, not because the foliage and flowers need shading, but rather that the bulbs may be kept cool. A rhododendron bed is an excellent place for lilies, as the conditions demanded by the rhododendrons are ideal for the lilies.

FALL SOWN LAWNS BEST

E. S., New York—Sow your lawn seed in September or in late March, just after a late snow storm. If sown in July, as you suggest, it will burn up and your lawn will become filled with weeds. A good lawn mixture is Kentucky blue grass ten quarts, Rhode Island bent grass eight quarts, and English rye grass three quarts. Use four bushels to the acre or one quart to 300 square feet.

BOSTON IVY ON SHINGLED HOUSES

L. J. H., New Jersey—The Boston ivy (*Ampelopsis tricuspidata*, known in the trade as *A. Veitchii*) will stick to wooden walls without any trouble. Are the shingles of your house stained? If so, that is probably the cause of failure, because nearly all the shingle stains contain copper or arsenic which kills the little adhesive tendrils. Any close clinging vine is bad on a wooden house, because the wood never has a chance to dry out properly and, in consequence, wood-rotting fungi find an admirable medium in which to thrive and which soon destroy it.

MAKING GRAPES BEAR

E. E. M., Pa.—The unfruitfulness of your red grapes is not due to the strong growth nor are the plants tender. More likely it is due to self-sterility. You fail to name the varieties you are growing. Among the red or reddish purple sorts that have been shown to set fruit poorly, although they blossom freely, are: Lindley, Salem, Vergennes, Wyoming, and Brighton. If your vines are of these sorts you must plant some variety near them which has an abundance of pollen, such as Concord. Keep on using a fertilizer which is strong in potash.

STORING MANURE

F. M. D., Cal.—Store the manure in a covered building, as exposure to the weather causes it to deteriorate rapidly. The ideal place is a shed with a cement floor or basin in which there are several wells into which the floor drains. The liquid portion can then be pumped out into tank wagons and sprinkled on the surface of the ground. The barn drains should be connected with the shed. If this method is impossible practically all the liquid can be saved if the cattle are bedded with sufficient peat, straw, or sawdust to absorb the moisture. Horse manure must be turned over frequently to keep it from "burning," as when fermentation takes place the ammonia compounds—the most valuable constituents—are driven off.



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AUTHORS

- | | |
|--------------------|--------------------|
| Neltje Blanchan | Barton W. Evermann |
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| Witmer Stone | L. O. Howard |
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The Homebuilder's Supplement

Housebuilding, and the improving of houses, grounds, stables and outbuildings, form so important a department of country living that it is impossible for COUNTRY LIFE IN AMERICA to treat the subject adequately in the space available in the regular pages of the magazine. We have, therefore, begun *The Homebuilder's Supplement*, which is really a large, separate magazine.

Some Features

Outdoor Sport

Moose Hunting with a Camera, by Dugmore.

The Chase of the Dolphin, by Dimock.

Housebuilding

Comparative Costs of Different Building Materials.

The Unexpected Extras of Housebuilding.

Building a Small Stable.

Automobiles

Lessons in Automobiles.

An Automobile Vacation.



One of the wonderful wild moose photographs by A. R. Dugmore which will appear in COUNTRY LIFE IN AMERICA in 1907

Some Features

Nature

The Pageant of Nature, a series, by Mary C. Dickerson.

Spring Birds, by Dallas Lore Sharp.

April Days, by John Burroughs.

Horses and Livestock

The Crime of Docking Tails.

A Cattle Raising Experience.

Poultry

The Best Breeds of Poultry.

Peacocks.

The Management of a Country House

What Can a Man Have on \$7,000 a Year?

Can a Country Gentleman's Farm Pay?

The Nature Club of America

To cover the great field of nature in COUNTRY LIFE IN AMERICA, we have established The Nature Club of America, membership being free to subscribers upon application. Monthly Nature Study Notes in the magazine, free lectures and stereopticon slides, and personal correspondence with the Secretary, are some of the features of the "Nature Club."

Stable and Kennel

This new monthly department will be full of practical suggestions for those of the family who care for horses and dogs. Some subjects will be: The Care of the Home Dog, The Combination Horse, Shipping Dogs for a Shooting Trip. The food and diseases of dogs and horses will also be discussed.

Stock and Poultry

Another of the new departments that will give specific, practical information every month.

The Double Numbers

The three double issues, the March Gardening Manual, the October Housebuilding Number and the Christmas Annual, have become famous. These annuals will form important features of COUNTRY LIFE IN AMERICA in 1907. 35 cents a copy (double numbers 50 cents), \$4.00 a year.

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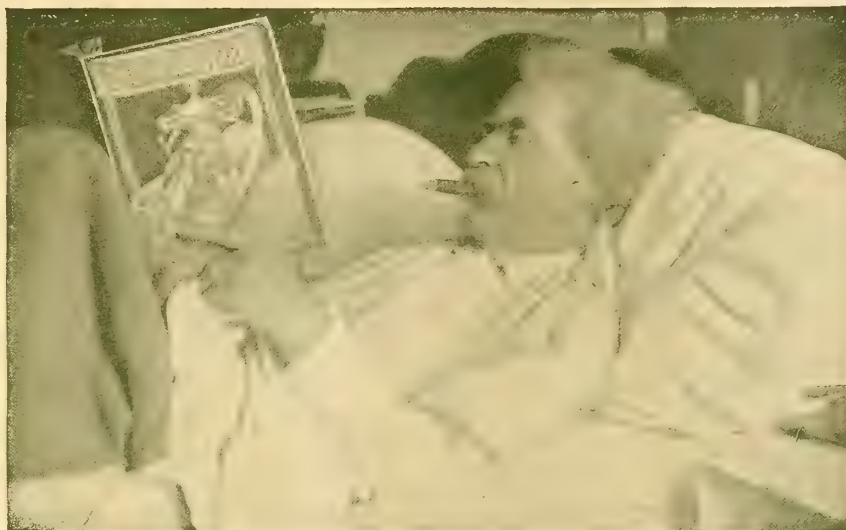
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for 1907

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Trusts and Their Makers.—How far are Messrs. Morgan, Rockefeller, Harriman, Havemeyer, and other magnates public enemies, and what is their service to the public. An intimate study of the Trusts as they affect the daily lives of all of us.

The Real South—Its Progress to Nationalization.—A revelation of the vital changes beneath the surface that are bringing the section into step with the nation—a story of the South in a new and bustling day—by Walter H. Page, the editor.

Does Harvard Do Its Job?—This will be one of a series of unsparing investigations of the kind of education the big and some of the little colleges are really giving. Are our colleges doing what we expect of them?

The Making of Investments.—Personally helpful monthly articles by Mr. C. M. Keys, now a member of *The World's Work* staff and formerly railroad editor of the *Wall Street Journal*

Keeping in Perfect Health.—If people knew and practised what the advance of medicine has discovered, there would be fewer fools and fewer physicians, but healthy human beings would be commoner. This series gives the needed illuminating facts.

Secrets of Business Success.—Intimate stories of the methods of men who are making money. Stories of merchants, manufacturers, bankers, and professional men, telling of their plans, their battles, their devices. The articles have all the suggestiveness of personal contact with these business geniuses.

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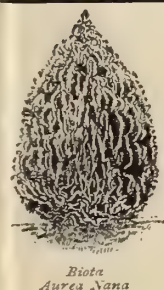
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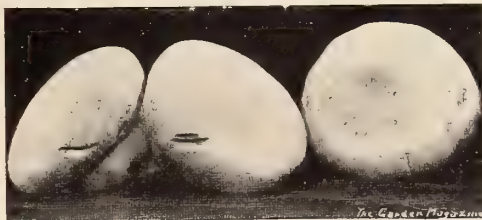
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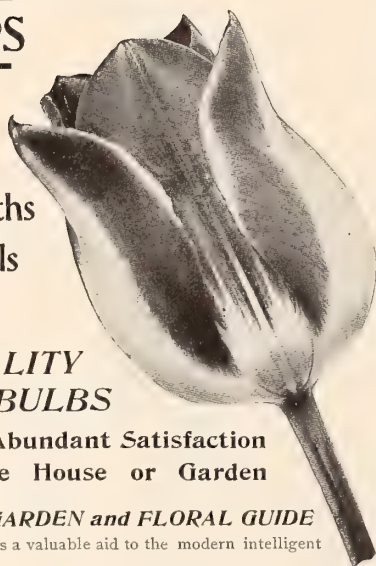
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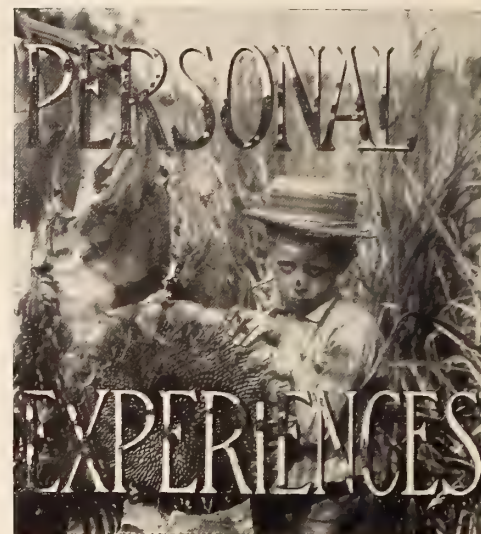


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Sowing Iceland Poppies in November

THE Iceland poppy furnishes us the loveliest yellow and orange flowers to be found in the poppy family; although it is a perennial according to the books it can easily be treated as an annual. In order to avoid the spring rush and to enjoy the pleasures of gardening every month of the year, I sow everything in the fall that I can, and last November I sowed some Iceland poppies in a coldframe where the seeds were dormant all winter. I might have sowed them out of doors, but we had no special use for the coldframe and it gave me a convenient chance to keep the seeds dormant by covering the frames. The seeds started to grow perhaps six weeks earlier than I could have sowed them out-of-doors in the spring and the poppies bloomed June 10th, a month earlier than usual which was well worth while.

New Jersey.

LOUISE SHAW.

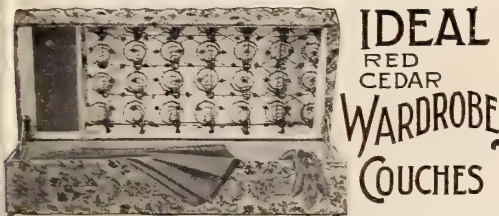
Lettuce in March Without Artificial Heat

LAST September I sowed lettuce in a coldframe for which we had no special use and left the ventilators open until late in November when the soil was thoroughly frozen. I then covered the frames with matting to keep out the sunlight. The object was to avoid the raising and lowering of the sash a dozen times on a warm day in winter when sunshine and cold alternated frequently. I did not care to bother with the coldframes at all during the whole winter, for they were a considerable distance from the house, but owing to the mild winter I aired the frames occasionally to prevent the plants from rotting. In March I took off the matting and the sunlight soon caused the lettuce plants to thaw out and grow so that we had lettuce during March and April without any trouble and expense.

This simple device will doubtless work better in a steady winter. Last winter, being the mildest on record, it was impossible to keep the plants dormant all the time. It is commonly said that lettuce should be grown without a check or it will fail, but while the quality of the lettuce was not of the very best, we found the experience satisfactory.

New Jersey.

LOUISE SHAW.



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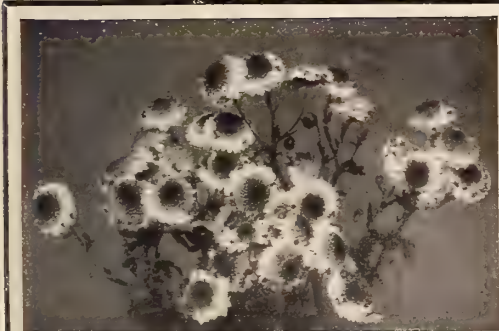
Our low prices, \$15.50 to \$37.00, depending on upholstery, are possible only because we ship direct to your home from our factory right in the cedar-growing country.

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Or we will supply one-half of this splendid collection, 250 bulbs, for \$2.75. Our distinctive, instructive and suggestive Fall Bulb Catalogue, containing a most comprehensive collection of Fall Bulbs with full descriptions and cultural directions, and illustrated with nearly 100 full page and other photo-engravings from life, mailed free.

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U. S. CREAM SEPARATOR

demonstrate the superiority of "U. S." cream for making the finest butter. 1906 continues the proof, and among many Highest Scores, won by the U. S., here are several of special prominence:

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An Attractive Exchange Garden That Works

LAST spring the Home Gardening Association of Cleveland established an exchange garden in connection with the work reported in the March and April issues of *THE GARDEN MAGAZINE*, through which persons who were interested in gardening might find a medium of exchange for their surplus plants and to which florists, nurserymen, owners of large estates and others interested were invited to contribute such plants as they could spare. During the year, the garden received and distributed about 20,000 plants.

The exchange garden was made possible through the kindness of a friend who loaned the use of a vacant half-acre lot in the heart of the city. When this lot of ground was turned over to the association it had the usual appearance of a vacant city lot; if anything, it was worse, for tons of flag-stones were scattered promiscuously over its surface. To put the place in order was the first step.

The president of the association gave \$150 to be used as was necessary, which was the only money the scheme received. The flag-stones were removed and the lot was laid out as a formal garden, for the purpose of suggesting, to persons who came for plants, ideas of proper arrangement and harmonious color effects. In order to make the garden attractive during the summer, seeds of annuals were planted.

As the plants were brought into the garden, some were given out immediately, others planted in nursery rows, and many placed in the garden for beautiful effects, as well as for the purpose of increasing their number by propagation.

We much preferred to receive hardy perennials, because they are permanent and increase so rapidly.

Besides furnishing a place where plants could be exchanged, the exchange garden had such a large number that we were enabled to furnish some of the schools with plants. One school received enough peony roots to make a low hedge seventy feet long.

Persons wishing plants applied at the office of the association, where they received a card stating they were entitled to plants from the exchange garden, which they could receive by applying Monday from 9 to 10 a. m., or Friday from 1 to 3 p. m. Everybody who applied received plants, even if they did not have anything to give in exchange.

LOUISE KLEIN MILLER,
Curator of School Gardens, Cleveland Public Schools, Cleveland, Ohio.

Service for Readers of The Garden Magazine

Readers' Service Dept., THE GARDEN MAGAZINE, 133-137 East 16th Street, New York

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December

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Vol. IV.

No. 5.

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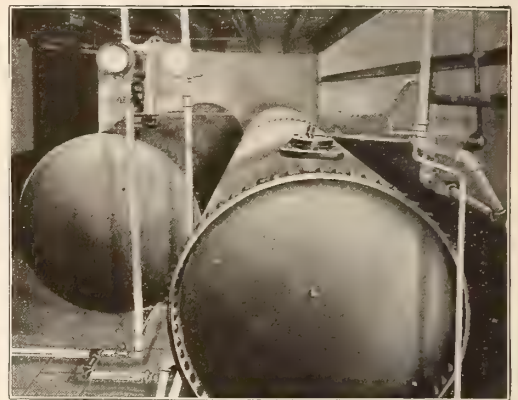
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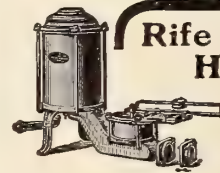


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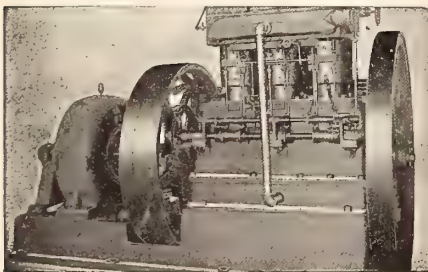
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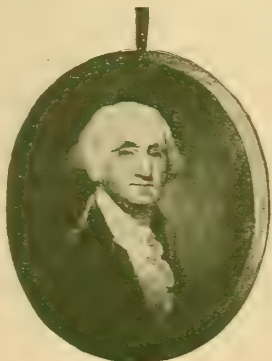
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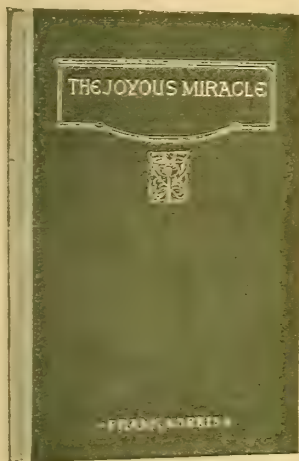
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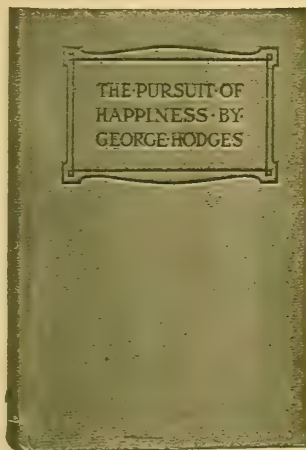
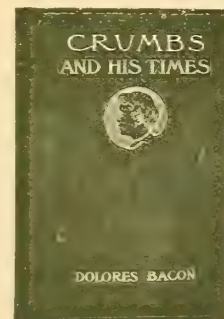
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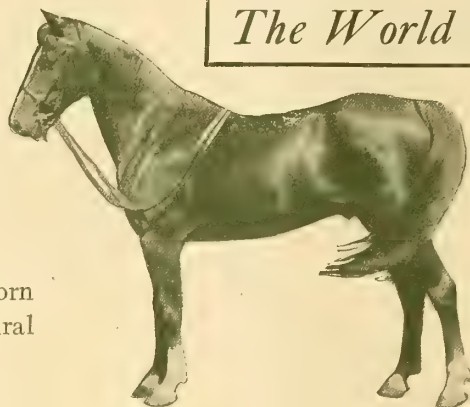
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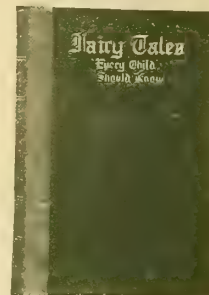
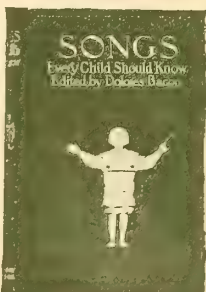
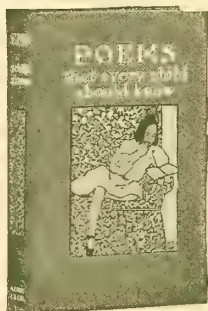
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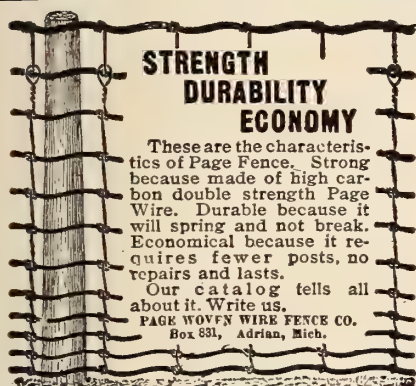
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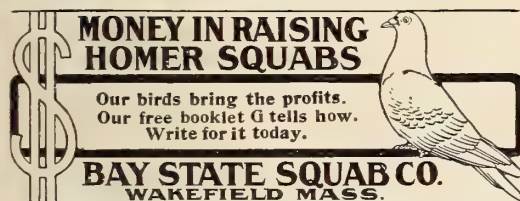
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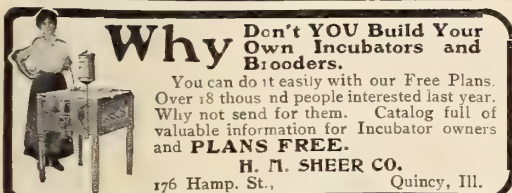
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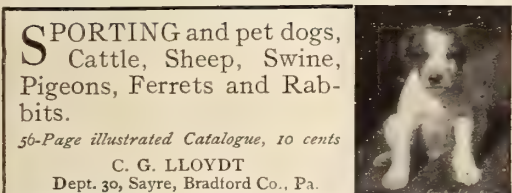
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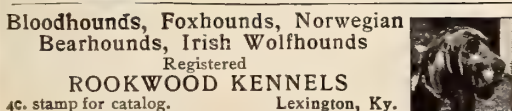
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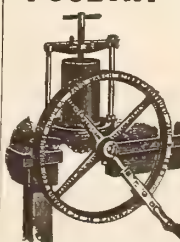


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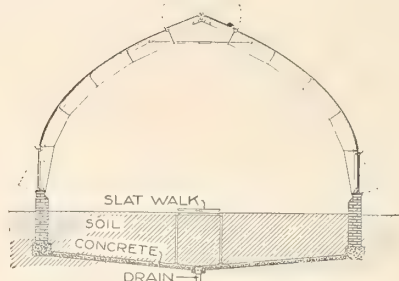


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CONTENTS

DECEMBER, 1906

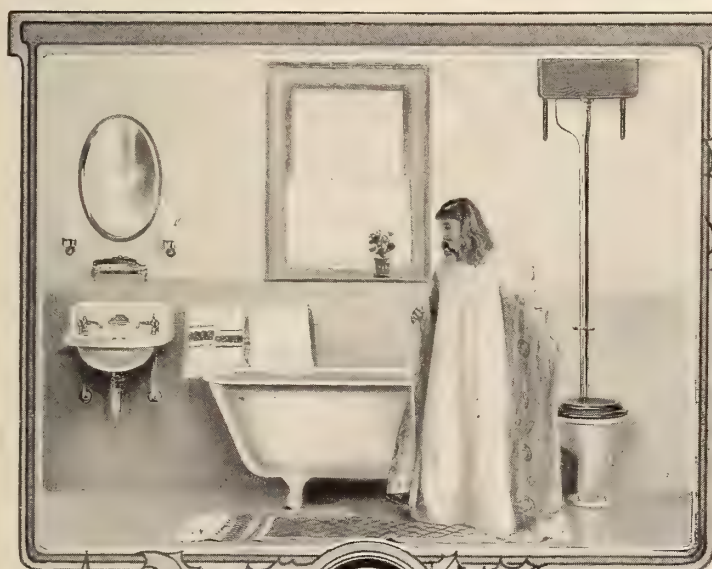
COVER DESIGN—BARBERRIES (*Berberis vulgaris*)

	PAGE
THE GARDENER'S REMINDER - - - - -	225
RECORD BREAKING EXPERIENCES IN GARDENING - - - - -	226
HEALTHY CLEMATIS AT LAST - - - - -	226
CELERY ON A CITY LOT - - - - - <i>Flora Warner</i>	227
SWEET PEAS ON MAY 17TH - - - - - <i>Frank H. Presby</i>	227
Photographs by Harriett C. Presby	
EPSOM SALTS FOR AZALEAS - - - - - <i>J. C. Hogenson</i>	228
Photographs by the author	
A 6 x 8 FOOT GARDEN - - - - - <i>Mabel Daumont</i>	228
Photograph by H. E. Angell	
POTATOES IN SEVEN WEEKS - - - - - <i>J. J. Wilson</i>	229
Photograph by the author	
A REALLY ATTRACTIVE CHRISTMAS WINDOW GARDEN - - - - -	
Photograph by the author <i>N. R. Graves</i>	230
A PHENOMENAL DEUTZIA (Photograph) <i>Louise M. Shaw</i>	230
BEAN POLES WHERE THERE ARE NO BEAN POLES <i>H. R. Mosnat</i>	231
Photograph by the author	
A GARDEN FOR SIXTEEN CENTS - - - - - <i>Louise Klein Miller</i>	232
Photographs by the author	
PAINTING A HOUSE WITHOUT RUINING THE VINES <i>L. B. Carpenter</i>	233
Sketch by the author	
CHRISTMAS FLOWERS IN THIRTY DAYS - - - - - <i>By T. C. T.</i>	233
Photograph by the author	
THE POPPY-BED PROBLEM SOLVED - - - - - <i>Louise Shaw</i>	233
Photograph by the author	

	PAGE
ALL THE HOLLIES WORTH GROWING - - - - - <i>Wilhelm Miller</i>	234
Photographs by N. R. Graves	
A PLACE PLANTED FOR WINTER COMFORT <i>Homer Hodgkins</i>	238
Sketch by I. G. Tabor	
AN OUTDOOR WINTER GARDEN - - - - - <i>Leonard Barron</i>	240
Photographs by N. R. Graves	
RED BERRIES THAT LAST TWO YEARS <i>Thomas McAdam</i>	243
Photograph by Henry Troth	
OTHER RED-BERRIED PLANTS - - - - - <i>P. T. Barnes</i>	244
Photographs by Henry Troth and N. R. Graves	
HOW TO KEEP PLANTS HEALTHY IN THE HOUSE - <i>P. T. Barnes</i>	246
A HOME-MADE JAPANESE GARDEN - - - - - <i>M. K. Farrand</i>	248
Photographs by H. E. Angell	
TYING UP THE CHRISTMAS PRESENTS - - - - - <i>Phineas Nolte</i>	250
RHUBARB AND ASPARAGUS ALL WINTER IN A HOTBED OR -	
FRAME - - - - - <i>George Standen</i>	252
THE BEST LIME-SULPHUR WASH - - - - -	254
THE SUCKERING ELM IN CALIFORNIA - - - - - <i>Ella C. Pond</i>	256
WHEN TO PLANT EREMURUS <i>F. H. Horsford, W. N. Campbell</i>	256
A PROFIT OF \$1.11 FROM 2 CENTS' WORTH OF CORN - - - - -	
<i>Lillie Koch</i>	258
THE COMMON BARBERRY - - - - -	258
ANSWERS TO QUERIES - - - - -	260
THE BEST GARDENING BOOKS FOR CHRISTMAS PRESENTS - - - - -	
<i>Thomas McAdam</i>	266

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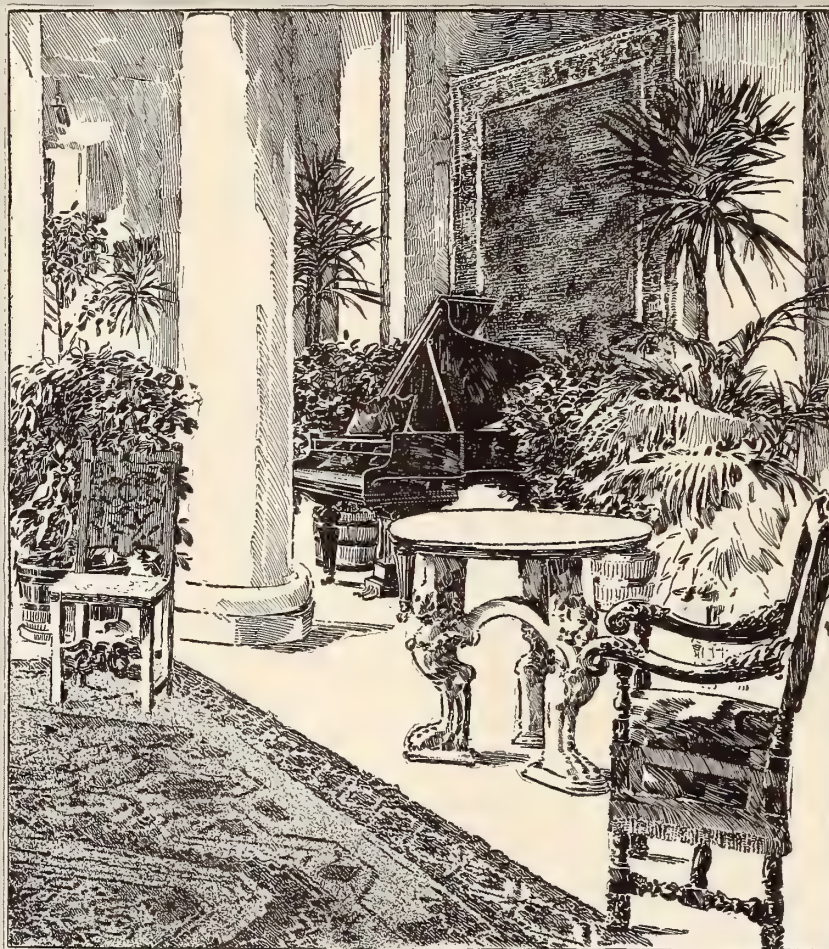
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The Garden Magazine

VOL. IV—No. 5
PUBLISHED MONTHLY

DECEMBER, 1906

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Some Plants and Flowers for Christmas Cheer

HOME-GROWN flowers for Christmas gifts! How much more expressive than what you merely buy in the stores. Living plants, or even cut flowers of your own rearing, carry with them a touch of personality and evidence of forethought that makes them doubly welcome.

The easiest of all things to do is to force the "lesser" bulbs—Roman hyacinths, crocus, snowdrops, etc. These do not require any better conditions than may usually be found in the window garden, and you have all the pleasure and satisfaction of having seen the plants grow to the flowering stage before giving them away.

Roman hyacinths that were potted in October, and have been making roots while buried, can be forced into bloom in four weeks from the time they are brought indoors. If you have a small greenhouse where a temperature of 60° and bottom heat can be had the bulbs can be forced for Christmas bloom in three weeks.

By all means try some crocuses in the window garden this year. They can be had for the holidays, for they need only two weeks forcing. Put about a dozen bulbs in a 6-inch pan; this is far better than using a pot.

The polyanthus narcissus (*N. Tazetta*) can also be had in bloom for Christmas by starting it about November 15th.

But the easiest bulb to handle is the Chinese sacred lily, which will do just as well in water as it will in soil. It will flower in six week's time.

Red is the Christmas color, above all else. Even among flowers, red varieties will prove far more popular than white or yellow—they seem to be more expressive of the prevailing sentiment of the season. White flowers fit in better for Easter. Red is cheery and warm. But it requires no little skill to have even red Duc van Thol tulips by December 25th. Allow five weeks after the potted and rooted bulbs are brought into heat

before they will flower. Keep the bulbs in a temperature of 55° at night, after the first week. Up to that time they may be kept a little cooler. The stems of these early tulips are very short, so when picking the flowers, instead of cutting the stem at the bulb, it is better to spilt open the bulb, to retain the full length of the stem.

After December 20th tulips will force more easily and can be had in flower in four to five weeks.

The earliest planted freesias (those potted in August) will flower for Christmas if they are kept warm (about 55° or more), after November 15th.

AZALEAS FOR THE HOLIDAYS

If you bought Indian azaleas in September or October, as advised in the September Gardener's Reminder, you can have some plants in flower around Christmas and New Year's. All varieties are not equally easy to force for that time. The best of all is Deutsche Perle (white). Simon Mardner (deep pink), is more desirable because of its color, but most amateurs find it difficult to flower at this early date. Helen Thielman, rosy carmine, is easier to handle, but less attractive in color. Another easy one to force is Vervæneana, the popular white and pink variety, but its erect habit renders it less decorative than the others. No other varieties are so easily handled for Christmas bloom.

The plants will flower in six weeks, if kept in a night temperature of 55°. Failures in forcing in the window garden, aside from poor ventilation, usually occur through the night temperature falling too low.

EASILY RAISED DELICACIES

Would you enjoy a dish of asparagus or rhubarb, before the outdoor crops are ready? Dig up the roots in December, and put them in boxes, where they may be stored away in the cellar or other cool, dark place. These roots can be forced in December and January in cold-frames (using manure to give the necessary heat), under the greenhouse benches, or in a heated cellar, where they can be kept moist. It is considered better to let the roots get one good frost before forcing is begun. Select strong roots, preferably three or four years old.

Unless the frames are ventilated from time to time, mildew will surely attack the growing plants. Whenever the air is above freezing temperature, uncover the lights, and ventilate by fixing the sash open with a block. Raise it six inches on a very warm day. A piece of wood 2x4x6 in. is a handy adjunct to a frame.

Have some hay piled in a convenient place

ready for throwing over the frames during extra cold weather. At other times the mats and shutters will be sufficient.

Make shutters for the frames at once. The right size for convenient handling is 3x6 ft. These are to be put over the mats, which they protect. The snow can be shoveled off the shutters much more easily than from the mats.

SOW VEGETABLES FOR SUCCESSION

In the hotbed you can sow lettuce, radish, and spinach for succession. Seed sown December 1st will give mature crops as follows: Head lettuce, March; radish, January; spinach, February.

Sow cauliflower in the hotbed for transplanting into coldframes later. These will mature in early summer.

OUTDOOR WORK THIS WINTER

Just as soon as the ground freezes—but not before—mulch all bulb beds.

Prune the fruit trees and grape vines. It is better to prune during the late fall, before hard frosts arrive, or in early spring. Pruning can, however, be done at any time during the winter, when the weather is congenial enough for one to be out-of-doors.

Examine the fruit trees for winter nests of insects. If you see two or three leaves rolled up together, break them open. If they contain a lot of little caterpillars about one-quarter of an inch long, they are probably the grubs of the brown-tail moth. Burn all the nests that you can find.

The easiest way to get ahead of tent caterpillars, is to cut down all the wild cherry trees on the place and burn them. Also look at the other trees for the little knobs on the twigs, as illustrated in the November GARDEN MAGAZINE, page 178. Cut off and burn them.

The bag worm spends the winter in cocoons which are suspended from the twigs of the arborvitæ, or other coniferous trees. Gather all you find, as well as any other cocoons, and burn them.

Spray for San José scale with a lime-sulphur wash. A very convenient formula is given in December, 1905, GARDEN MAGAZINE, page 240.

Spray roses with whale-oil soap for scurfy scale. Use one pound of the soap to a gallon of water.

Many choice little herbaceous plants of the rockery which are rather tender may be safely wintered over by covering with a pane of glass to keep off the rain.

Clean up all the tools and cover the iron work with grease to keep them from rusting. A mixture of white lead and lard is best; vaseline is good.



Among the very best flowering vines for trellis or porch are the Jackman clematis (*C. Jackmanii*), with violet flowers, and its varieties. But unfortunately the plants often die mysteriously. By cutting off the entire top when planting in May, a strong new resistant growth results

Record-breaking Experiences in Gardening

THE SECOND ANNUAL COLLECTION OF LITTLE NARRATIVES BY THE READERS OF THE GARDEN MAGAZINE, IN WHICH THEY TELL OF UNUSUAL PERSONAL ACHIEVEMENTS IN GETTING BIGGER, BETTER, OR EARLIER RESULTS

[EDITOR'S NOTE:—The December number of THE GARDEN MAGAZINE has a peculiar significance. It differs from the Christmas numbers of other periodicals in this feature of "rounding up" the experiences of its own family of readers during the year. Particularly we want the assistance of our readers to help us establish an authenticated set of horticultural records and we repeat our challenge of last year.

We hereby offer Five-dollar bills in unlimited number for any accounts of personal experience that beat any of the present records, or for accounts of original experiences similarly told. We want more little stories of home successes, and especially under unusual conditions. To be eligible under the offer the article must be short, concise, stating all the essential facts as to conditions and results, and must be accompanied by a photograph. And we look for the home feeling—mere size of a single specimen, for instance, does not necessarily entitle the subject to an award; we would rather have earliness combined with quality.

We reserve the right to be the sole judges of what constitutes a record-breaking achievement under these conditions.]

Healthy Clematis at Last

IT IS no use planting varieties of the Jackman clematis," is the opinion of nine-tenths of the people who have tried them once, "because," as they urge, "you no sooner have the plant than you lose it."

The "disease"—nobody seems to have any very definite ideas as to what it is—attacks the plant, killing the growth when it is just about at its best, and when the gorgeous flowers should be opening in all their glory. That it is an eel worm, which chokes the woody tissue of the plant, and prevents the circulation of the sap, is most likely the true explanation of this bothersome disease.

A Holland nurseryman, Mr. B. M. Koster, after studying some acres of clematis, came to the conclusion that this eel worm traveled on the surface of the wet ground, and entered

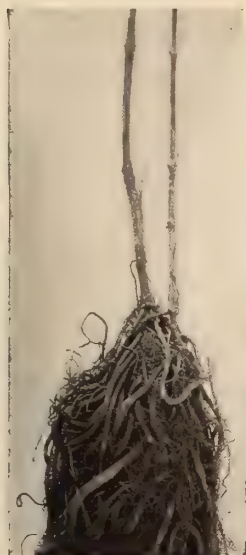
the plant through the ruptured bark, just at the point of emergence from the earth. He gives these reasons for the belief: 1. The trouble is most noticed after a fairly wet season; 2. Hilling around the plant with sand seems to lessen the liability to attack.

Here is an interesting fact. The plants as offered for sale as they come from the nurseries have an abundance of roots and usually a slender growth, with the bark badly torn an inch or so above the crown. The clematis bark, as is well known, splits very easily; merely giving the stem a slight twist will rupture it. Now, as planted in the nursery, these whip-like growths are driven about by the winds, with the result shown in the illustration at the top of the next page. Suppose they are grown to stakes, the danger of damage still exists, because in shipping and handling before they are planted, they

are exposed to a good deal of rough usage, and more or less tearing of the bark is bound to follow. If these plants are set out in this condition, the entry of the disease is invited.

Mr. Koster's remedy therefore, is this: Cut an inch or two below the crown, completely severing the upper portion of the plant. The clematis makes buds and roots in alternate tiers, and, by thus cutting, a pair of underground buds will be started into vigorous growth. If the ground is slightly hilled now, these new shoots will come up unscathed, with entire bark, offering no entry for the troublesome worm. This cutting is done immediately on planting, sacrificing the entire top of the plant. It seems like too radical a treatment.

Here is the evidence of one of the leading nurserymen of this country. Can any better testimony be had? He writes that



Clematis as it is usually planted. Note the ruptured bark close to the roots

"Clematis, plants such as we send out in the spring of the year are field-grown plants which we import from Holland. These plants, early in spring, before they start into active growth, we usually pot up into 5- or 6-inch pots, leaving about three feet of the old wood on the plants, in which condition they are sold to the retail trade during the spring months. Usually our sales for this class of stock continue until the latter part of June, and until a few years

ago we simply carried what stock was left over in pots throughout the summer, allowing the old tops to remain on the plants. Handled in this manner we lost anywhere from 50 per cent. to 75 per cent. of the plants. In speaking to Mr. Koster about this serious loss at one time, he suggested that when our selling season was over we should take the plants, cut the tops off level with the ground and bury the pots in a well-drained piece of ground, so that they would be covered with an inch of soil, assuring me that the greater part of the plants would start into new growth *from the root*.

This I have done for the last three or four years with most wonderful results. I now save from 75 per cent. to 90 per cent. of the plants, losing only from 10 per cent. to 25 per cent. The treatment seemed so harsh—to take the plants in this growing condition and cut down so severely—that I felt sure after the job was completed the first time, that it would be an entire loss, and the result surprised me. Mr. Koster recommends that clematis, when planted in the open ground, be treated in the same manner, and from what I have seen of the pot-grown stock here I believe that he is correct."

Celery on a City Lot

FLORA WARNER, Michigan

LAST year I had a celery bed which was partly between the barn and corn crib, and partly south of them, and was protected on the north side by a tight board fence. The north part is low and always moist; the south part is higher and dry. The area of the bed was about four and three-quarters square rods, or about one fortieth of an acre.

On May 25th two 1-horse loads of well-rotted manure were spread evenly over the surface, and spaded into the soil. The ground was left rough until the plants were set out when it was raked until the surface was smooth and fine, commercial fertilizer being raked in at the same time.

The seed of white plume celery was sowed March 11th and grown in a cool greenhouse, until the weather was warm enough for the flat of young plants to be set outdoors, after which, the plants were so neglected that stunted stock for transplanting resulted. Most of the plants were set out, after a shower, on June 15th. They were set five inches apart, in rows that were ten inches apart, the rows being in groups of four and five, with paths between the groups twenty inches wide. There were about 1,800 plants. By stretching a line the whole length of a row, distributing the plants along it, and then setting them with a dibble, only a short time was required to fill the bed. The plants being stunted when set out, took quite a while to start growing but not more than three dozen died.

The bed was weeded, soil loosened with a hand weeder, and paths hoed and raked, three times during the season. By the first of September the bed was one sheet of dark green and creamy white. The paths were hardly distinguishable. To bleach the celery boards six inches wide were shoved down the paths under the leaves, carefully turned on edge against the rows of plants on each side of each path, and held in place by stakes.

By the middle of the month we began using the celery. Out of every 100 plants, about ten were culls; so that 200 plants out of the 1,800 grown were useless. The 1,600 plants were worth twenty cents a dozen, so the crop was worth \$26.66.

What did I do with all my celery? Our family is large, and we like celery, so we had it on the table at least once a day, usually twice. A neighboring grocer, bought six dozen a week and my neighbors and friends bought considerable of it. In October, before severe frosts, we dug up several dozen of the strongest plants, and after pulling off the tough, imperfect stalks, set the roots in about three inches of earth on the cellar floor, packing them as close as possible, and yet



Cut off the top of the clematis, even sacrificing a few roots like this. New strong growth will develop from the bud, clearly seen below the upper whorl of roots

having soil around each. They were then moistened (without wetting the foliage and stalks) and we were using crisp, white celery until February 1st.

Sweet Peas on May 17th

FRANK H. PRESBY, New Jersey

THE middle of February I planted fifty pots of sweet peas, using 6-inch pots, and putting six seeds to a pot. They were placed in a sunny corner in my pit, which was described in the September GARDEN MAGAZINE, page 61.

The seeds were a long time germinating, but the plants were three to four inches high, and the pots full of roots by March 17th, the time when I usually sow my sweet pea seed outdoors.



These sweet peas were in flower at Montclair, N. J., on May 17th. Seeds were started in pots in February, and transplanted March 17th, the usual date for sowing outdoors

I made a new trench—never plant sweet peas twice in the same place—about fifty feet long. The balls of earth were carefully knocked out of the pots and set in the trench, one foot apart.

The weather during March and April was very favorable to the vines, which grew well, so that I was able to pick my first flowers on May 17th, and within a week a good-sized bunch. From that time until I left my house for the summer (about August 1st) I had all the flowers one could want (everybody wants plenty of sweet peas). The crop throughout my town was more or less of a failure, because of a very severe drought in the spring. I attribute my success to the fact that the plants were able to get deeply rooted before the dry weather set in.

Epsom Salts for Azaleas

J. C. HOGENSON, Utah

YOU can grow azaleas and other lime-hating plants on any sort of soil if you dose them with Epsom salts. Naturally, these plants inhabit a peaty, acid, or sour soil, which conditions cannot exist where lime is present. The usual method of growing azaleas, etc., in a limestone region is by making huge excavations and filling in with a specially made compost, and if you give a sufficient depth (several feet) of the proper soil, though it is underlaid by lime, the plants will flourish abundantly. The common Epsom salts (sulphate of magnesia), which can be bought for ten cents a pound, will counteract the lime.



Do your azaleas resemble this? Then possibly you have lime in your soil. Compare with the plant in the next column.

I took two plants as near alike as possible, and potted them up separately in a good compost, to which nearly a half ounce of lime was added to every five pounds of soil or five and a half ounces to every cubic foot of soil. One of the plants was grown in this soil, without any other addition. The other one received a good quarter of an ounce of Epsom salts to every five pounds of soil (or three and a quarter ounces to every cubic foot and a little over three tons to an acre)

It was interesting to watch the developments. Both plants started out well, but the one soon began to show weakness and the



This result was brought about by adding Epsom salts (sulphate of magnesia) to the lime-laden soil that stunted the plant on the left

edges of the leaves curled inward; the flower buds became limp, and finally turned brown and dried up, without opening at all. But what a difference in the other plant, which had been dosed with Epsom salts; it maintained good growth, bore an abundance of flowers, and carried them for nearly a month. The same thing happened with rhododendrons.

The amateur gardener who suspects lime is causing any difficulty in the growing of azaleas and rhododendrons, should proceed thus: Dig a hole two feet square, and loosen the soil to a depth of two feet, mixing into it twenty-eight ounces Epsom salts. As the salt dissolves almost immediately on contact with the soil, there is no need to make a solution, and it would seem from my experiments that the one dose is sufficient for the season's growth. By this method I do not see why members of the heath family or any other lime-haters, cannot be grown on any sort of soil.

A 6 by 8-foot Garden

MABEL DAUMONT, N. J.

WHEN a year ago last October I looked on the small yard, which was simply an ash and rubbish heap, at the back of the house, I said, "I will make a flower garden," speaking with the assurance of utter inexperience as to garden making outside of a few invalid potted plants. I began, and having begun kept at it notwithstanding the unthought-of difficulties and labor.

I would read of people with limited incomes planting bulbs by the thousand and other things in proportionate quantities. That is not the kind of limited income with which I am acquainted.

In the usual books and magazines on gardening, rules and instructions are on a large scale; quite too troublesome to reduce in ratio.

In despair I turned from "acres, bushels, gallons, and loads." Nothing seemed to fit my few feet of earth, so I evolved a garden out of my hopes, desires, instincts, and com-



These two rhododendrons were grown in the same lime-laden soil, except that Epsom salts was also added to the pot on the left (1-4 ounce to every 5 lbs. of soil)

mon sense; one pair of hands doing everything both inside and out.

When you hear the dimensions you will wonder what time could be needed more than the fugitive minutes most homemakers have. The actual planting space, enclosed by a paling fence is in two plots; one 6 x 8 ft., the other 4 x 5 ft., which a paved path divides at right angles, skirting the fence at one side. A gate at the end leads to a turfed yard, used in common with other tenants. I pilfered a few inches of this yard, just outside my fence, as you will hear later.

First of all the clearing, and such a task—where ashes were not, tough grass and weeds of many seasons' growth had to be dislodged, the paving stones nearly came up too in my enthusiasm. Little by little I brought good soil from nearby lots; as the land was clayey, sand was invited to take part and make it friable.

As it was to be a garden in miniature it was planned with exactness and with an eye to the harmony of the various blooms I elected to have. I had often read of, and seen grass paths. I longed for one; so eleven inches were marked off the full length of the 6-foot plot, leaving a bed eighteen inches wide on one side. The larger space on the other side was sub-divided, for easier handling, by a curved path of oyster shells ten inches wide. The making of this grassy way was toil indeed, but not regretted. The grass I dug from nearby lots in the fall and I chose that which grew near trees, in small patches rather than the larger sods I had not strength to handle. Many of the pieces were only a few inches square. The fairy path was finished by the first week in November also a narrow grass border for the plots. All this must be constantly clipped and kept within bounds.

Then I put in plants, roots, etc., which would stand the winter and be established by spring. They were placed with an eye to fitness and coloring, the exposure being southwestern. At the sides and corners of the 6 x 8 ft. plot I had a white chrysanthemum, a root from an elder bush, a day lily, some yellow iris and a coreopsis. Along the end fence, a Crimson Rambler rose, a clematis, and several runners of honey-suckle. On the other side of the fence (the pilfered inches) a lilac shoot at the corner, one golden glow, and a root each of pink, white, and yellow chrysanthemums and a hollyhock of aristocratic lineage. Finally a few dozen assorted bulbs for spring blooming were planted deep, and when the ground was frozen stable litter and manure were strewn over the ground.

When promising spring ceased flirting so that the covering could be raked off it was a joy to see everything growing and the grass in good condition.

The middle spaces were prepared for seed, keeping one portion for annuals. There were no abnormal blooms, but flowers of some kind were plentiful all summer and autumn for table decoration and giving away. The poppy bed, 2 x 4 ft., was a marvel of beauty. Beyond, a square foot of California poppies flanked by a maroon scabiosa and two or three each of phlox, asters, and wall-



Sprouted potatoes planted on April 18th on a plot 50 x 85 ft. yielded 15 bushels of good tubers in seven weeks. The earliest record for that section of New York State (Lake George)

flowers. A border of dwarf sweet alyssum with a salvia at each end was a study in scarlet and white. There was no crowding except among some of the annuals, it being a garden of units, bringing a single plant to perfection rather than a row or group of mediocre blossoms.

The 4 x 5 ft. plot forms part of the area facing the kitchen door and window, through which the sun streams nearly all day.

Morning glories were trained over the window to make a natural awning.

Trailing nasturtiums of all shades rioted over the dividing fence. A castor bean plant in one corner of the bed was given all the care and room it needed, growing, with tropical effect, seven feet tall with a spread of eight feet. In the other corner on the same side was one Golden Glow that was a giant shower bouquet.

Overhanging and partly covering the bricked-up portion which holds that part of the garden in place, was a portiere four feet long, reaching to the ground, of creeping Charlie (*Lysimachia nummularia*). In that

same plot is a rose, a bush of lavender, a bleeding heart, a wall-flower, a corner of mint, and some bulbs.

Two gaunt clothes line posts just outside the fence were converted by morning glories planted and strung so that the poles were completely covered, also festooning the space between.

Two or three feet beyond is a silver leaf maple sapling from a mountain side miles away.

For fertilizing I discarded all the book talk and had recourse to the homely dish water, also rinsing water, slightly ammoniated, from the wash tubs every week. My compost heap is confined in a butter tub with holes bored near the bottom. With the cover on it is sightly and unsuspected. Stable litter I get by the barrel from a huckster.

Potatoes in Seven Weeks

J. J. WILSON, N. Y.

POTATOES in eight weeks, said the GARDEN MAGAZINE for last March. Impossible, I thought, but still, as I had some tubers of Eureka in the cellar an experiment was started. Result: potatoes in seven weeks! I brought up a bushel of tubers that had sprouts half an inch to an inch long and placed them on trays in a light room where the temperature ranged from 40° to 65°. The sprouts and surface of the potatoes gradually turned to a bronze green. The sprouts became stocky and had small, scaly leaves but did not increase in length.

On the 18th of April they were planted in a light sandy loam in a garden 50 x 85 ft., having a slight grade to the east and south. For fertilizer I used half a pint each of wood ashes and hen manure to a hill. The seed was handled with care so as not to injure the sprouts and planted in rows four feet apart and about fourteen inches between the sets.



A woman's 6x8 ft. garden that gave a constant supply of cut flowers from spring until frost

The weather was very unfavorable being cold and rather wet but the growth of the vines was remarkable. The only cultivation was with a wheel hoe, the ground being kept flat. We dug the crop the last week in June and got fifteen bushels. These are the earliest potatoes ever raised in this part of the state (on Lake George) where the season is usually two to three weeks later than in the vicinity of New York City.

A Really Attractive Christmas Window Garden

N. R. GRAVES, Rochester, N. Y.

THE photograph on page 231 was taken last Christmas. It was at once a thing of beauty and a joy and pride of the owner. Not only was there a variety of palms and ferns, and the ubiquitous rubber plant for greenery, but there were all these in flower: geraniums, pelargoniums, or Lady Washington geraniums, cyclamens, lantanas, begonias, fuchsias and several cacti, and plants of coleus, asparagus, smilax, and two varieties of begonia grown for their beauty of foliage.

This garden is really an extension or bay window, built on the house, and opening into the dining room. A door was cut through between the two windows originally there, so that from inside the garden has the appearance of being really part of the room. It is 4 x 14 ft, of the same height as the room,

and built on an 8-inch brick foundation. A cellar window opens into this space beneath the floor, and during the winter this is kept open for warmth. The three front sash are 4 x 6 ft. while those at the ends are three feet wide and six high. Above these sash are transoms 18 in. x 4 ft. hung to swing out, for ventilation.

Two shelves, each one foot wide, extend around the room, one above and one below the large sash. These two shelves, and the iron brackets which are screwed to the window casings, hold most of the plants.

Heated from the furnace by a register in the floor, and the heat which comes from the house, through the open windows and door, it has never been necessary to give any additional protection, except during extremely cold nights, when pieces of cardboard are placed in the outer windows next to the glass.

The windows from the dining room are hung with curtains of a thin ruffled net, draped sufficiently high so as not to interfere with the Boston ferns which stand on the sills. At each side of these windows stands a large Kentia.

The upper shelf is almost filled, by the geraniums, which do best there. A few pots of smilax occupy the corners. A touch of seasonable color is lent by three hanging pots of crab cactus (*Epiphyllum truncatum*) which blossoms very freely.

On the brackets are the cyclamen, Gloire de Lorraine begonia, lantana, *Primula obconica*, and a couple of small plants of

maidenhair fern. In the centre of the lower shelf is an asparagus vine (*A. plumosus*) and grouped at each side are Martha Washington geraniums, fuchsias, *Begonia Rex*, *B. metallica* and the coleus, while on the ends of the shelf next the house are two pots of ivy, which are being trained up over the windows.

MANAGEMENT FOR WINTER BLOOM

Cutting of geraniums are taken from good healthy plants in the latter part of August and potted in a rich garden loam. Set in a place where they will have plenty of light, but no direct sun they root in a month or so. Let them remain unmoved at least two weeks after they are rooted; then shift outdoors into the sunlight, where they remain until ready to move indoors to a well lighted corner. To insure good stocky plants, pinch out the centre, after the young plants get well started. Remove all flower buds, as long as growth alone is desired.

In watering window plants one must use common sense. Give moisture whenever necessary, and do it thoroughly. A little sprinkling, which doesn't penetrate the soil more than half an inch or so, does but little good, even if applied every day. So when you water plants, give them a good soaking then leave them alone until they really need a similar treatment. Geraniums will blossom better if kept slightly dry.

Divide primroses in the spring, pot and keep in partial shade during the heat of summer, remove all flower buds, and notice



The reward of not crowding. A phenomenal deutzia growing in a New Jersey garden. The bush measured nine feet in diameter, and very nearly six feet in height, not including the coronet-like plumes. You can have an equally good specimen by affording plenty of room and giving ordinary care



A Christmas window garden that is really a success. Geraniums, cyclamens, crab-cacti, and primulas give plenty of flowers; palms, ferns, and *Asparagus Sprengeri* give greenery. This is built outside the window of the room, and has no heat other than what comes from the furnace of the house

particularly whether the plants need repotting in the fall. Keep primroses fairly moist.

Begonias are long-lived as a general rule, and if repotted each spring, kept outdoors in light shade, and fairly dry during the summer, will quickly come in bloom when brought into the house, if given plenty of sunlight and water. The fuchsia also likes the shade during the hot summer months.

Most people find cyclamen hard to grow, but they are such a desirable addition to one's winter bloom that they are well worth the trouble. They should be kept cool and shady during the summer, protected from direct sunlight, and watered mornings. Pinch off all flower buds until September 15th. Two persistent enemies of the cyclamen are the green fly, and the worm. The former gets in the heart, and destroys all the flower buds, but a little tobacco dust will destroy it. The worst enemy is the worm, and a weak, sickly plant indicates a worm in the root. The safest way is to keep the pots plunged in ashes or peat during the summer.

When cuttings of pelargoniums are first made drench the soil with water, then keep fairly dry, to prevent rot, until plants are

brought in the house, when they should have plenty of sun and water.

The crab cactus is kept dry during the summer; water being given not oftener than once a month, or until it shows flower buds; then give it all the water it will take until through blooming.

I think that using fertilizers in a window garden oftentimes does more harm than good. If the plants are in good rich soil, and in well-drained pots, and otherwise in good condition they will not need fertilizer to make them bloom. In a large greenhouse, where there is abundance of air, fertilizers are sometimes beneficial.

Among other plants which will bloom at Christmas time in the house are narcissus, the early tulips, the Roman hyacinth, several early varieties of the Indian azalea (*Deutsche Perle*, *Vanderkreusen*, and *Pharilda Matilda*), the calla lily, heliotrope, oxalis, and amaryllis. Carnations do very well, if good strong plants are obtained.

During the summer, after the flowering plants have been removed, shades are put in the windows and the ferns and palms set in, so that the window garden is an attractive feature in the summer as well as during the winter.

Bean Poles Where There Are No Poles

H. R. MOSNAT, Iowa

I wished to grow pole beans out here where there are no poles! There were good reasons; because I had a green podded variety of which the family is very fond; because I believe that pole beans are of better quality than bush beans; further, because in a small garden they will yield a much larger crop than bush beans on the same space; and because they are easier to pick.

But there was always trouble in getting poles. This is not a timbered country, and it is impossible to get cedar poles, which are really the only satisfactory ones. I used sunflowers instead.

It has always been my custom to set the poles securely in the ground before planting the beans, and I followed this same method when putting out the sunflower bean poles. The sunflowers were transplanted from a patch of self-sown plants just before planting the bean hills.

For a time it seemed as if the beans were going to smother the young sunflowers, but the latter soon struck a gait that not even the vining pole beans could keep up with, and in



A happy inspiration! When you cannot get poles for the pole beans, grow sunflowers as supports.

July, when the beans began to bear, they had climbed little more than half as high as some of the sunflowers, which on account of transplanting, developed into very sturdy, stocky plants. The only care the sunflowers have required has been cutting off the lower leaves and branches in order to give the beans more air and sunshine. There are forty hills of beans, half of which are growing on wooden

poles, the remainder were trained on sunflower plants.

The labor of providing sunflower plants was considerably less than that of putting in the wooden poles.

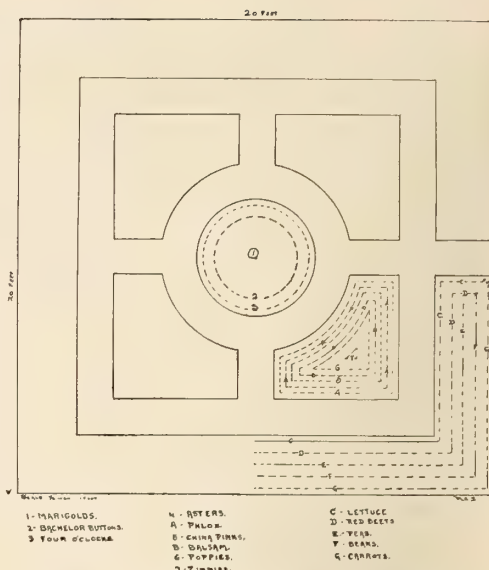
A Garden for Sixteen Cents

LOUISE KLEIN MILLER, Cleveland, Ohio

BEN and I are neighbors. There was an empty space in our back yards and we pooled our efforts to make a neighborhood garden, utilizing his practical experiences and my "theories," thus deriving some pleasure from digging in the soil, and incidentally having fresh vegetables during the summer. We bought sixteen penny packages of seeds, ten of flowers and six of vegetables.

With line and tape measure, we laid out the garden, striving to combine utility with artistic effects in color and arrangement. It is possible for a vegetable garden to be just as interesting and beautiful as a flower garden, and it is more practical; but a combination of the two is the plan par excellence. The garden was twenty feet square. All the paths of the garden were two feet wide. Instead of having a bed of coleus, or other "bedding plant," we had a three-foot border around the entire garden of vegetables.

On the outside edge of the bed was a row of carrots which were sown very thickly, and thinned when the roots were about three inches long. These young carrots are delicious stewed with a few raisins and dressed with cream. By judicious thinning, we had carrots until frost. Lettuce bordered the other edge of the garden and was crisp and tender in the early season, giving good heads



Planting chart of the sixteen-cent garden below

later. Next to the lettuce was a row of beets which were thinned, and the young beets and tops used for greens. After the lettuce had passed its prime, and was removed, the beets had grown so as to require the additional space.

Next to the beets came a row of peas, which were harvested early and the vines pulled out. Between the carrots and the peas was a row of beans which bore extremely well. In the early spring we had a border which was really beautiful, made so by the contrasting colors, diversified foliage and manner of growth. The light green of the lettuce produced a good effect next to the varied reds of the beets, and the yellow-greens of the beans and the bluish green of the peas were quite harmonious. When the bean plants were full of the dainty white pea-shaped blossoms, and later of yellow-green pods, the border was exceedingly effective.

The autumn beauty of the feathery leaves of the carrots and strong upright leaves of the beets was charming.

The centre of the garden was reserved for flowers. Marigolds occupied the centre of the circular bed with a row of corn flower next, with the four o'clocks around the edge. The yellow and blue afforded a fine contrasting of color.

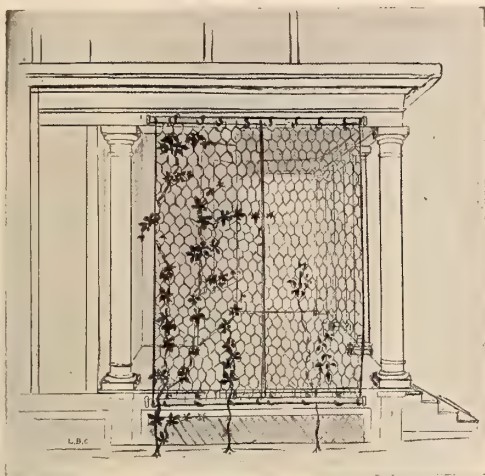
The corner beds were planted with reference to manner of growth, color, and time of blooming. Zinnias were placed in the centres of the beds, being rather strong and vigorous in growth. By the time they were in their prime, the poppy border (which came next) had ceased flowering. Next came the balsams, bearing their blossoms on a lower plane than the poppies. The China pinks added a row of flowers of rich velvety texture and varied colors from the most delicate tints to the deepest shades.

Perhaps the brightest border was the phlox which bloomed all summer. Here for late blooming we planted asters, which always are most satisfactory.

The arrangement of our beds may not have been the best, but it afforded pleasing variety and we had a great deal of satisfaction out of it. Corn is not the best thing to put into a



This 20 ft. square formal combination garden of flowers and vegetables was planted at a total cost of sixteen cents for seeds. For details, see plan



Vines often interfere with repainting a house. By means of the iron-frame hinged trellis which may be laid flat on the ground, a difficulty is solved

garden, so it was relegated to the fence to serve as a screen. Beyond the square garden we put some tomato plants, a few more beans, and some cabbage plants which were given to us, but the sixteen-cent garden was confined to the square.

Painting a House Without Ruining the Vines

L. B. CARPENTER, Montclair, N. J.

THE question of training vines successfully, so that when a house is painted they can be laid down and put up again without injury, has been solved recently by my neighbor. He made a device in the form of a screen of wire netting attached top and bottom to two poles by means of S-hooks and it was kept in place by hanging the poles on hooks screwed into the top and bottom of the piazza. The poles were pieces of 1-inch galvanized iron gas pipe eleven feet long. At the shop where the pipe was bought, a screw thread was cut on the ends of the pipe and caps screwed on, so that the poles looked neat. The netting was the kind ordinarily employed for vines to run on. It was wrapped once around each pole and then further secured by the S-hooks, about sixteen inches distant from each other. Three plain hooks one in the middle and one at each end, were screwed into both the top and bottom of the piazza, for the screen to hang on. All the hooks were of galvanized iron.

The vines are trained up the netting. When painting is necessary, the screen can be lifted from the fixed screws by the poles without danger of coming apart from the netting, and vines and all can be laid on the grass and protected as seems best, then hung up again when the painting is completed.

The end of the porch pictured is twelve feet long, so two lengths of netting five feet wide were wired together.

Christmas Flowers in Three Weeks

Mrs. F. C. F., Michigan

QUITE late last fall, when the price had been reduced to the low figure of ten cents a dozen, I invested twenty cents in nar-

cissus (Paper White) bulbs. They were not planted until the first of December, when some stones were put in the dishes, the bulbs set in, and water poured on them. Even the usual precaution of starting them in the dark was not taken. In just three weeks the first blossom burst from the stalk of buds, and one single stalk had eleven pure white blossoms, almost overpowering with their fragrance. Some grew more slowly than the others and on January 8th, one 6-inch dish having ten bulbs had six stalks of expanded blossoms and two other yet to open.

The Chinese lily bulbs which I got at the same time had scarcely blossomed. This winter I shall start earlier and make several plantings, so as to lengthen the enjoyment. I think it is the greatest return for the money I ever received.

The Poppy Bed Problem Solved

LOUISE SHAW, N. J.

WE LIKE to grow plenty of poppies each year, but as their season is so short there is ever the problem of what to do with the bed afterwards.

In the April GARDEN MAGAZINE one practical solution was to transplant asters or other annuals. My (accidental) scheme seems better as the end or even middle of July is rather late to transplant annuals.

For two years we grew portulaca as a border to a garden walk. The third season we decided to have Shirley poppies instead, and sowed the seed as early in the spring as possible. Poppies and self-sown portulaca came up together but the poppies so quickly outstripped the portulaca that very soon there was nothing to be seen of the latter. For six weeks the poppies bordered the walk with a blaze of color, until one day late in July a heavy rainstorm left them sprawling hopelessly across the path. I reluctantly set about pulling them up by the roots when a happy surprise greeted me—there, under the poppy foliage, were the patient portulaca seedlings, of rather anemic complexion, to be sure, but struggling to bloom. I was



Christmas blooms in twenty-one days. Paper White narcissus grown in water

careful not to disturb them as I took the poppies away, and in two weeks they were as thick a mat of wholesome green as if they had never been robbed of a day's sunshine. By the middle of August they were in full bloom and the garden path had its border of color again until frost. Since poppies self-sow as readily as portulaca we are in hopes that this succession of bloom will repeat itself next year; for in this way we are saved not only the trouble of spring sowing but the risk of midsummer transplanting to replace the poppies when their season is over.



After the poppies ceased flowering they were pulled up, and self-sown portulaca from the previous year quickly grew up and made a gay succession

All the Hollies Worth Growing—By Wilhelm Miller, New Jersey

HOW TO GROW AMERICAN HOLLY OUTDOORS IN THE NORTH AND HAVE ITS RED BERRIES WARMING OUR HOME GROUNDS ALL WINTER—THE BEST SPECIES FOR THE SOUTH AND CALIFORNIA ALSO

[EDITOR'S NOTE—This is the thirteenth of those "Little Monographs," discovering the comparative merits and limitations of the different species. The pretentious "Monograph" that has hitherto been the fashion is unreadable and useless, for no one can master a group in which the species are alphabetically arranged. That sort of botanical pedantry is cheap and easy. The important and difficult thing is to show which species are the best, and why.]

THERE can be no question as to what is the best red-berried shrub in the world. The English or European holly, has held first place in the hearts of mankind for untold centuries because its red berries last all winter and are set off by dark lustrous evergreen foliage. Moreover, it has a deep religious significance. The early Christians made wreaths of it, to symbolize the crown of thorns. At first it was called "Christ-thorn," then "Holy-tree," and finally "holly." It therefore suggests the inner meaning of the most important of all holidays.

But, alas! English holly will not survive our Northern winters. Our Southern friends may enjoy it every day of the year, and, if you live near the Atlantic coast, you can get a few sprigs of it at Christmas time.

Beautiful as it is, our American holly is not quite equal to the European species. The English holly has a richer, darker, and more lustrous leaf; with more life in it—more suggestion of immortality, of indomitable courage. Its berries, also, are a trifle larger and richer. American holly has a duller leaf (whence the name *opaca*), but its berries are more abundant, and less hidden under the foliage.

We ought to thank our stars that we have any holly at all, for the climate of the United States, north of Richmond and St. Louis, is hostile to "broad-leaved evergreens," i. e. holly, laurel, etc., as opposed to pines and other narrow-leaved conifers. Yet I was never more surprised than when I learned that holly—real holly, with red berries on it—actually grows wild to-day as far north as

Maine. The reason why everybody unconsciously assumes that holly is exclusively Southern is that our Christmas supply comes chiefly from southern Delaware and Maryland. But that is only because the holly-pickers have exhausted the available supply in the states to the north.

The important fact is that we can have holly berries all winter in our home grounds, as far north as New York, and possibly even at Boston—but only on three conditions:

1. We must get both staminate and pistillate plants.
2. We must remove all the leaves when we plant them.
3. We must place them in partial shade where they will be protected from north-west winds and winter sunshine.

This is no idle theory. On May 4th, 1905, I had the pleasure of picking holly berries off some cultivated holly trees belonging to Mr. James Wood, of Mount Kisco, N. Y., and I give my word of honor that the berries were as bright and plump as any one could wish. They had remained scarlet six months!

Unfortunately no way is known by which any nurseryman can tell whether a given tree is staminate or pistillate until it flowers, by which time it is too large to be sold cheaply and transplanted easily. The common way is to buy half a dozen trees, hoping that one of them will be staminate and the rest pistillate. Buy proved trees if you can, even if it costs more, and put your staminate tree in an inconspicuous position, as it does not make as symmetrical a specimen.

The reason why you have to strip off the leaves is that transplanting is a much greater shock to a broad-leaved evergreen than to any other plant. If you let the leaves stay on, the roots will not be able to supply sap as fast as it is evaporated by wind and sun.

ANALYSIS

The genus *Ilex* contains 175 species, of which fourteen are worth growing. The paragraphs in which these are described are numbered to correspond with the "Purchaser's Guide," on page 233, and the following analysis shows the main facts about them at a glance.

Evergreen	Species No.
Hardy, red-berried	2, 3.
Tender " "	1, 4, 5, 6, 7.
Hardy, black-berried,	14, 15.
Deciduous	
Hardy, red-berried,	8, 9, 10, 11.
Hardy, orange-scarlet,	12, 13.

I. Red-berried Evergreens

The three species first described are the only ones that can be properly called hollies,

since they are the only ones with red berries and spiny evergreen leaves.

THE THREE TRUE HOLLIES

1. English holly (*Ilex Aquifolium*). Only two important characteristics have not been given above. The leaf margins are usually deeper cut than in the American holly, and the spines a trifle longer. But the astonishing thing is the number of cultivated varieties—over 150 in Europe! Among these are varieties with orange or yellow fruit, pendulous or ascending branches, large or small leaves, and spineless or spiny foliage, but many of them are essentially variegated plants (the leaves being margined, splotched, or mottled with white or yellow), and these have little or no fruit. It is to be hoped that some one will make a good collection of these, growing enough of them in pots to exhibit in the winter at Washington, Baltimore, Cincinnati, or wherever they would be appreciated.

2. Japanese holly (*I. cornuta*). The Far East contributes two hardy evergreen red-berried *ilexes*, but this is the only one with spiny-leaves. It can be instantly told by the three strong spines at the dilated apex of the leaf. It often happens that the middle spine turns down, and the two outer ones turn up, like horns, whence the name "cornuta": In young specimens there are two or more weaker spines at the base, but these are lost as the shrub grows older. It is believed to have darker and glossier leaves than the American holly, and may prove hardy in New York in shelter and partial shade. It is not hardy at Boston. I do not know



A fair sample of ordinary well-berried holly. (*Ilex opaca*). No special care in shipping



An extraordinarily well-berried sprig as shipped from the South in small paper boxes

any fruiting specimens in America. Herbarium specimens show berries a quarter of an inch in diameter, and about three in a cluster.

3. The foliage of the American holly (*I. opaca*) is not as dark and glossy as that of the two species just described, and the berries are borne on this year's wood—not last year's. "The fertile holly tree," says Miss Greenlee, "is a sharply pointed cone with branches drooping in graceful spray; the sterile tree spreads almost horizontal branches out stiffly into a broad, formal, rounded cone." It attains an extreme height of fifty feet in the South. The tallest trees that I know of in the North are the ones at Mount Kisco, N. Y. They are about ten feet high.

FOUR SPINELESS TENDER EVERGREENS

The next four, though red-berried and evergreen, can hardly be called hollies, since their leaves are not spiny.

4. The broad-leaved ilex (*I. latifolia*) probably has the largest red berries of all ($\frac{1}{2}$ to $\frac{3}{4}$ of an inch in diameter, and three to seven in a cluster). It also has the largest leaves (2x6 in.) and ought therefore to be tried from Georgia south, where it may prove to be one of the most imposing broad-leaved evergreens. This tender Japanese tree might better have been called "longifolia." The only specimen I have seen has light green foliage.

5. The Californians have no native holly. Their "Christmas berry" is a native shrub of the rose family, *Photinia arbutifolia* also known as toyon or tollon. The berries are only $\frac{1}{4}$ in. in diameter, but the clusters often contain 100 berries, and are probably the largest of any red-fruited plant. When these are set off in winter by the shining, serrate leaves, the toyon is, according to Prof. Sargent, "perhaps more beautiful than any other North American tree." It grows wild

as far north as Mendocino county, especially on the northern slopes of dry hills, and it withstands ocean gales. It blossoms from June to August, and has small, whitish flowers in panicles four to six inches across. The berries are mealy, astringent, acid; ripen in November and stay on till late winter; and are more or less hidden by the foliage. The tree sometimes attains thirty feet. It ought to be commonly cultivated in California and the South, but is practically unknown, though it rarely appears in catalogues as *Heteromeles* or *Crataegus arbutifolia*. Photinia fruits have one or two seeds. Ilex berries have four stones. Photinia flowers have five petals, Ilex usually four. The hardiest Photinia is the deciduous *P. villosa*, which does well at Boston.

6. The cassena berry, known to everyone from Virginia south, is *Ilex vomitoria*. Miss Rogers, in the "Tree Book," tells us that the Indians made their nauseating "black



The black alder (*Ilex verticillata*) the common red winter berry of swamps. Leafless in winter



The large-leaved winterberry (*Ilex monticola*) has the largest berries ($\frac{1}{2}$ inch). American mountain species

drink" by boiling the leaves. The whole tribe drank it persistently for several days every year in the belief that the whole system was cleansed by the process. Another name for it is yaupon. These berries ripen in late autumn and sometimes stay on until the spring growth begins. Last March I saw young bushes choking the woodside ditches in South Carolina, and also a grand specimen at Magnolia Gardens loaded with thousands of berries.

7. Unfortunately, the plant to which Linnæus gave the name *Ilex Cassine* is not the cassena, but the dahoon. The berries of the dahoon are duller, but are rather more conspicuous because borne on this year's wood. The leaf of the dahoon is only one or two inches long, and has crenate margins; the cassena leaf is twice as long and usually entire. Both are shrubs, rarely trees twenty-five feet high, with berries $\frac{1}{4}$ in. in diameter, that are used in the South for Christmas decoration. They are so common that few people cultivate them and no nurseryman cat-

alogues them. The cassena is the commoner, and is never found far away from salt water. The dahoon is never common on the seacoast, but is found on the borders of cold swamps in rich, damp soil. Near the Gulf it grows on the high, sandy banks of pine barren streams.

II. The Red-berried Deciduous Species

The deciduous species are less beautiful in winter because they have no foliage then, but they are easy to transplant, and will thrive in the open sunshine in ordinary soils, even when natives of wet woods.

8. It is a pity that the botanists give the name "mountain holly" to *Nemopanthes fascicularis*, because *Ilex monticola* means that. The name "Nemopanthes" refers to the stalks of the berries, which are much longer than those of any holly (1 inch long). The berries are dull, light red, $\frac{1}{4}$ in. long, borne singly, ripen in August and drop about the middle of September.

I am sorry to have misled some writers by saying, in the "Cyclopedia of American Horticulture," that the berries are pendulous. They are erect. I must confess that I have never seen this plant. It grows in sphagnum bogs in the Appalachian mountains, from Maine to Virginia. It is said to thrive in cultivation, attaining a height of ten feet. I propose that we call it the "long-stalked winterberry."

9. The large-leaved winterberry (*Ilex monticola*) has the largest berries and largest leaves of all the deciduous species worth growing. The berries are half an inch in diameter, but not abundant, and they drop after Christmas. This is our mountain-loving Ilex. In the Catskills it is a tall shrub; in North Carolina a tree forty feet high. The leaves are often five or six inches long. "It is too shaggy to give general satisfaction," says Mr. J. Woodward Manning.



The inkberry (*Ilex glabra*), slow-growing, hardy evergreen native shrub with black berries



The Japanese *Ilex serrata*. One of two varieties introduced as *I. Sieboldii*

10. The black alder (*I. verticillata*) is the common red-berried shrub that you can find in Eastern swamps in winter. Why it should be called black alder, I can't imagine. The leaves look something like an alder's, and remain green in autumn until successive frosts make them turn black, and wither. The berries are bright red, about $\frac{1}{4}$ of an inch across, and in winter seem to be more or less whorled (whence "verticillata"), but they are really borne singly in the axils of the leaves. They last until February. The black alder is a spreading shrub, five or six feet high.

11. There is no inducement to grow the Japanese *Ilex serrata*, as both *I. verticillata* and *I. laevigata* are better. At least two varieties of it have been introduced under the name of *Ilex Sieboldii*.

III. The Scarlet-Orange Group

Orange, and yellow colored berries will never be as popular in winter as red ones, but

the berries are often dull under artificial light. The next two have just enough orange in them to make them show well by gaslight when cut for decoration.

12. I propose the name "Piedmont winterberry" for *Ilex decidua* as neither "swamp winterberry" nor "short-pedicelled winterberry" distinguish it from the black alder, with which its red-berried form is often confused. It is a smaller shrub, blooming a month earlier, and the tip of the leaf is rounded, not pointed. Both species bear most of their fruits on short spurs, while in the next species, they are axillary. The fruits of the Piedmont winterberry often fall by mid-winter, but sometimes stay until spring.

13. The smooth winterberry (*Ilex laevigata*) is so called to distinguish it from *I. verticillata*, the leaves of the former being glabrous, while those of the latter are pubescent beneath. For horticultural purposes, however, it should be compared with *I. decidua* because both have some orange in

their berries, and bloom at the same time. All three are natives of swamps, but thrive in garden soil. The smooth winterberry has the largest berries of the three ($\frac{1}{2}$ in. in diameter), and these are borne on longer stalks ($\frac{1}{2}$ to $\frac{3}{4}$ in.), but they drop in autumn, or at least by January. The foliage turns bright yellow in September.

IV. The Black-berried Group

Both of the following have black berries that last until February, but they are only an incidental beauty. Their evergreen foliage is the main thing. Shelter them from winter sun and wind.

14. The Japanese *Ilex crenata* is considered at Philadelphia the most promising substitute for box as a hedge plant for American formal gardens. Three important forms must be distinguished—the typical *I. crenata* and its large, and small-leaved varieties, (vars. *macrophylla* and *microphylla*). Mr. William Warner Harper says: "The small-leaved variety makes the bushier growth and is much twiggy; the leaves are lighter green, and more distinctly crenate, and the berries are very few. The two large-leaved forms make height much more rapidly, and bear abundant crops of berries. The smaller-leaved form is desirable for hedges that are not to be more than four feet high, but is better adapted for growing as a specimen."

The Boston experience is conflicting. One nurseryman declares that the small-leaved form is hardy at Portland, Me., while the broad-leaved is not hardy north of New Haven, Conn. Yet the Arnold Arboretum says: "The small-leaved form is much less desirable. Neither is reliably hardy near Boston. We should say that this species is not good for hedges and gardens here. The most reliable small-growing, broad-leaved evergreen here is *Andromeda floribunda*, one of the very best and apparently least known shrubs."

Ilex crenata will grow six or ten inches a year, when established in congenial environment. For hedges, set two-year-old plants two feet apart. The floral parts are in fours; those of the next in fives to eights.

15. The inkberry (*Ilex glabra*), which grows wild in sandy woods along the Atlantic coast from Canada to Florida, is another slow grower, rarely attaining three or four feet. The leaves are locally gathered for winter bouquets, and are sometimes kept in cellars for months, but it seems a shame to rob nature of slow growing evergreens. Some one ought to test it as a hedge plant, and find out its value as compared with *I. crenata*. The berries are not showy, and are nearly concealed by the foliage.

CULTURE OF EVERGREEN HOLLIES

English holly is hardy in sheltered spots as far north as Philadelphia, but cannot be expected to grow taller than a man. From Virginia south it may attain its maximum height—forty feet.

In New York it can be left outdoors in partial shade and shelter, so that you may



The small leaved variety of *Ilex crenata*, possibly the best hardy broad-leaved evergreen



The American holly (*Ilex opaca*) common in the South but in the North thrives only in sheltered situations. The beautiful red berries hang on all winter

enjoy the berries outdoors until the holidays are over. Then give it a straw overcoat.

In New England the English holly must be stored over winter. A living room is too hot; the berries will drop. If you have no cool greenhouse, you can store them in an unheated pit without even putting them in tubs, and it is not even necessary to keep the frost out. A pair of hollies near the front-door is the ideal thing for summer decoration. Bay trees are nowhere.

I have never seen a holly hedge, but in Europe the English holly is considered a distinguished hedge plant. It can be clipped and pruned into any shape, and as the berries are not borne on the new wood, they are not cut off by the annual trimming, which may happen with American holly. Its drawback is its slow growth. Also, a little thrush eats the berries. The "Ilex" hedges of Italian gardens are made of holm oak (*Quercus Ilex*), which has holly-like evergreen foliage.

The English hollies in tubs, that look so attractive in florists' windows in early December, are very likely to lose their leaves and berries in a few days, when subjected to the hot, dry atmosphere of a living-room. If you cannot resist buying one, put it in a cool, damp building until a few days before Christmas. After Christmas cut back all the branches nearly to the stem, cut off all the leaves, and bury the tree in the open ground, or in a damp cellar. Next spring plant it out in partial shade, and thereafter treat as advised for New England.

Some enterprising Southerner could probably get \$5.00 each for wild hollies in tubs, if he would dig up berry-bearing plants in spring, prune and strip them, pot and grow them for a year or two.

Southerners who transplant hollies from the wild to their home grounds usually fail.

Keep the roots damp every minute they are out of the ground, prune and strip as directed, and you will succeed. It is safer (and sometimes cheaper) to buy nursery-grown plants. In the South holly often grows wild and fruits freely in dry, barren, gravelly soil and full sun, but it reaches its greatest height (fifty feet) in the river bottoms of southern Arkansas and eastern Texas. Give it rich soil and partial shade, if you can.

The best time to transplant evergreen hollies, North or South, is in early spring, just before the plants start into new growth. The other time is in early fall, when the young wood is almost ripe. Their roots are thick and fleshy.

It takes two years for *Ilex* seeds to germinate. They are therefore "stratified." The evergreen species can be propagated under glass by cuttings of ripened wood.

An English holly $3\frac{1}{2}$ to 4 feet high costs about \$1.50, and American holly the same height, \$1.00. The deciduous species cost 50 cents to 75 cents. It is not safe to eat the berries. They are purgative and emetic.

Holly flowers are minute, fragrant, and beloved of bees.



A new way of shipping fancy holly so as to preserve all the berries



The large leaved variety of *Ilex crenata*, considered better than box by some

PLANTERS' GUIDE TO HOLLIES

(The species have been already described in this order)

- A. The red and orange-berried group
- B. Color scarlet
- C. Foliage evergreen: lvs. thick
- D. Leaf margins spiny
- E. Berries on last year's wood: lvs. dark and glossy
- F. A tender tree. ENGLISH HOLLY 1. *I. Aquifolium*
- FF. A hardy shrub. JAPANESE HOLLY 2. *I. cornuta*
- EE. Berries on this year's wood: lvs. lighter and duller. AMERICAN HOLLY 3. *I. opaca*
- DD. Leaf margins not spiny: plants tender
- E. Berries $\frac{1}{2}$ to $\frac{3}{8}$ in. in diam. BROAD-LEAVED ILEX 4. *I. latifolia*
- EE. Berries $\frac{1}{4}$ in. in diam. F. Clusters 75-100 fruited. CHRISTMAS BERRY 5. *Photinia arbutifolia*
- FF. Clusters few fruited
- G. Berries on this year's wood, dull red. DAHOON 6. *I. Cassine*
- GG. Berries on last year's wood, bright, scarlet. CASSENA, YAUPON 7. *I. vomitoria*
- CC. Foliage deciduous: lvs. thin.
- D. Fruits long stalked LONG-STALKED WINTER-BERRY 8. *Nemopanthes fascicularis*
- DD. Fruits short stalked
- E. Berries $\frac{1}{2}$ in. in diameter. LARGE-LEAVED WINTER-BERRY 9. *I. monticola*
- EE. Berries $\frac{1}{4}$ in. in diam. or less
- F. Lvs. turn black after frost: petals 5-6. BLACK ALDER 10. *I. verticillata*
- FF. Lvs. not turning black after frost: petals 4-5. 11. *I. serrata*
- BB. Color orange or scarlet-orange: foliage deciduous
- C. Berries mostly on short spurs 12. *I. decidua*
- CC. Berries in axils of lvs. SMOOTH WINTERBERRY 13. *I. laevigata*
- AA. The black-berried group: foliage evergreen
- B. Floral parts in 4's 14. *I. crenata*
- BB. Floral parts in 5's to 8's. 15. *I. glabra*

A Place Planted for Winter Comfort—By Homer Hodgkins, ^{New York}

PLANTING PLAN FOR A 100x150 LOT CONTAINING THE BEST RED-BERRIED AND RED-BARKED SHRUBS, BRIGHT EVERGREENS, A WINTER PLAY-GROUND FOR CHILDREN AND INTERESTING THINGS FOR THE REST OF THE YEAR

THE flood of magazine articles on "spring gardens," gardens for September effect, etc., may be entertaining enough for millionaires who have three or four residences, but, ignoble as the confession may be, I never expect to own more than one house, and I fear I shall have to live in it the year round! The plain truth is I can't afford a bigger lot than 100 x 150 feet and even if I could I wouldn't have it because I don't want to keep a man, and my own patience gives out after doing a certain number of chores. An hour a day in the garden is delightful. After that—it's too much like work.

Now, the one great criticism about American home grounds is that they are neither comfortable nor beautiful in winter. Everybody takes it for granted that it must be so, but I am perfectly sure that every yard 50 x 100 or larger can be made attractive 365 days in the year and particularly that it can be filled with suggestions of warmth and cheer all winter. The way I propose to get all this is by having:

1. A windbreak to keep my house warm and save coal.
2. An outdoor playground for my children in winter.
3. Some lovely specimen trees of light-colored cheery evergreens, instead of the dark, depressing kinds you see everywhere.
4. Red-berried shrubs whose berries will last all winter or at least till long after Christmas.
5. Red-barked shrubs whose twigs will make a cheery contrast with the snow.
6. Deciduous trees and shrubs that have special winter attractions, but will give us flowers all the rest of the year.
7. A snug little greenhouse (costing say \$1,000), where we can snap our fingers at sleet storms and grow our favorite flowers in the teeth of winter.

HOW TO ATTAIN THEM

Now there are only two ways of getting all these good things. The first is to know it all yourself—which is clearly impossible, for no power under heaven could persuade me to lumber up my brain with all the stuff those botanical waterspouts have to know. The second way is to catch a young landscape gardener who has the training and the ideas, and is mighty glad to keep the pot boiling while he waits for the world's fairs, national capitals, parks, and great estates to materialize.

So I caught one—a young lady—and laid down the law like this:

I want the rooms we use most to have the sun all day long and the views from those rooms have got to be attractive 365 days in the year.

I'd like a genuine little landscape picture—one that will satisfy all the canons of your art.

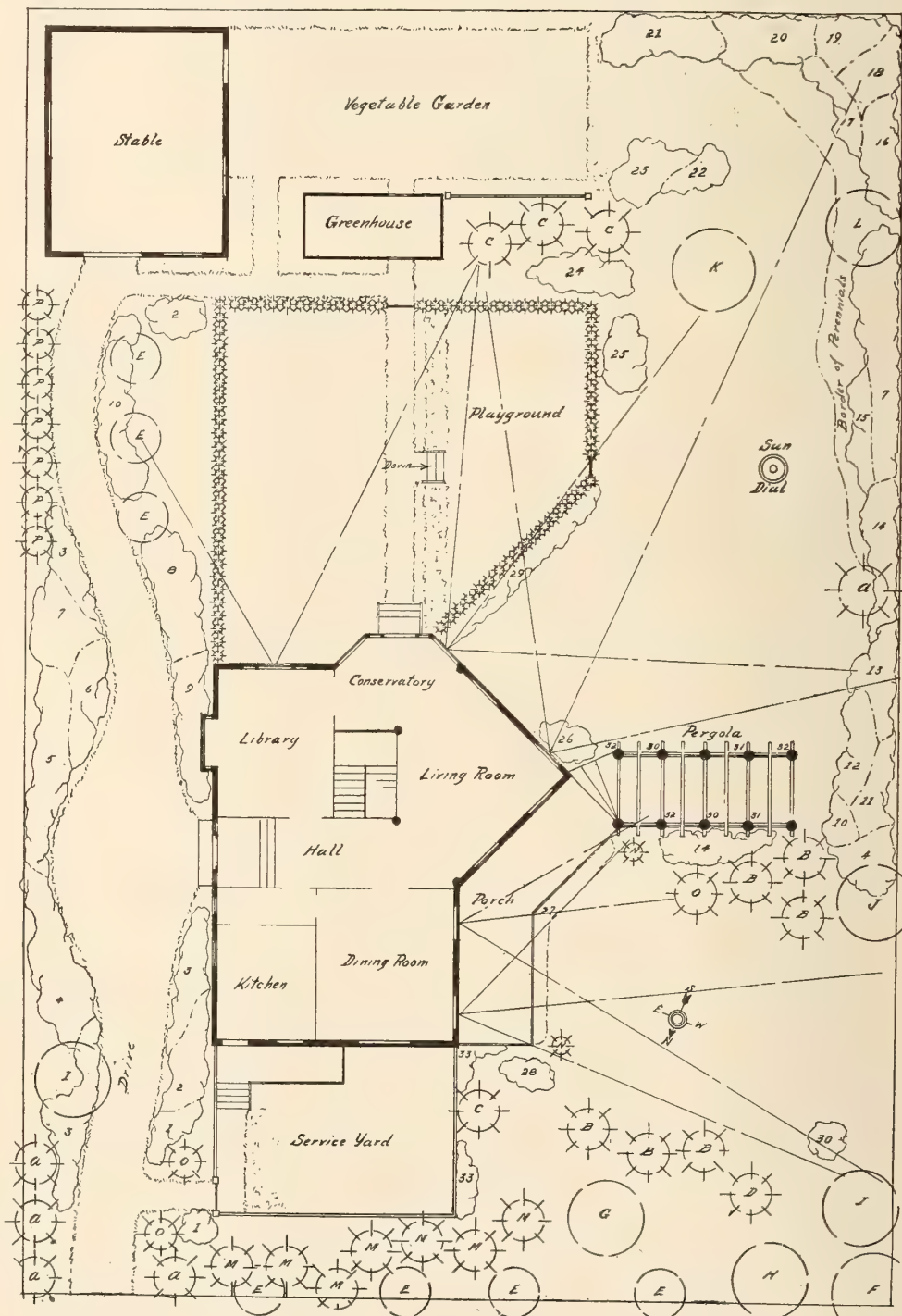
I won't have a single bedding plant or any other costly, temporary things on the place. Everything must be hardy and reasonably long-lived.

I must have a vegetable garden large enough to raise our favorite vegetables.

I want the whole thing cheaper than anyone ever had it before.

This was "piling it on" with a vengeance and I expected my young friend to beat a graceful retreat. But she was "game."

"Its a mighty stiff proposition," she said. "The firm I studied with would demand a \$1,000 retainer at once. But I'll give you everything you want, and I won't have to violate my ideals either!"



The plants for the 100x150 ft. garden will cost about \$350. Deciduous trees are indicated by the plain circle; evergreens by the decorated circle; an irregular waved line marks shrubbery overhanging lawn; the dot and dash sinuous line marks the edge of a cultivated bed. For the meanings of the numbers and letters see the planting list opposite. "View lines" from the windows indicate the garden pictures

A day passed, and there was a hurried knocking at my office door.

"Do you mind my facing your house any way I like, and rearranging all your rooms?"

"No—not if it's convenient and looks all right."

"Any objection to privacy, or must your front yard be open and park-like?"

"I'm old-fashioned enough to be fond of privacy."

A week passed and I thought my young friend had fallen by the wayside. Then she came in, rosy and enthusiastic.

"I've got it!" she exclaimed. "I've given you everything you asked for!"

She had—and more too, but I didn't

realize it at first (I defy any human intellect to grasp a plan at once). So I faltered out, "Why doesn't my house front the street?"

"Because you can't get the sunlight all day in the rooms you use most unless you let them face south and southwesterly. Those rooms, of course, are your living rooms, library and conservatory—for you ought to give your plants a fair show, too."

"Certainly!" I admitted. "But have I got the nerve to turn my back on my neighbors—or rather 'sidestep' that way?"

"They'll never see your house or you theirs. You'll be in a little world of your own. That hemlock hedge screens you entirely."

I looked dubiously at the irregular row of M's in the plan, each surrounded by a broken circle with prickles on it. That sort of conventionalized gooseberry, it seems, always indicates an evergreen tree.

"But evergreens take forty years to grow, don't they? I'll be dead then, you know?"

"Oh, that's easy. Do you see those E's in front of the M's. Those are Carolina poplars which will screen your place faster than anything on earth and by the time your hemlocks are tall enough to hide things both summer and winter, the poplars will be hopelessly commonplace, and you'll cut them down."

I nodded approvingly and thought, "That girl's no doll!"

"What's a service yard?" I inquired.

"That's where your grocer comes and the iceman, and where you keep your ash can, garbage pail and everything unsightly. That's hidden, too."

"What are all those clothes lines stringing across my yard?" I inquired.

"Those are view-lines," replied the Paragon, quite unruffled. "For instance, the longest view you have is from the living room to the corner of the lot. The reason why that willow is at K, is that you can enjoy it there, whereas, if it were five feet over it would stop your view."

Even I could see that, although I'm a sort of standard of stupidity when art talk is in the air.

"What's all this business we've got to look at from the dining room window," I asked.

"Why, I thought you'd like a little pergola, so I've put half a dozen vines on it that will give you flowers nearly all the season, instead of two weeks of fire-alarm, and seven months of bugs and shabbiness, as Crimson Rambler would."

"Bless her soul," I thought. "That's the woman of it." I didn't give in then, for I had always poked fun at the pergola fad and I had rather counted on showing the world that there was one safe and sane man left. I weakened later, though. And now I'm glad I gave in.

"What about this playground?" I demanded.

"That's all protected from the winds by the tall evergreen hedge," she explained, "except that on the lawn side I've used an extra border of rugosa roses, to give brightness from the windows. There will be big

SHRUBS FOR BORDERS AND LAWN BEDS

COMMON NAME	STANDARD OR TRADE NAME	HEIGHT (FEET)	WINTER COLOR	NO. OF PLANTS NEEDED	ESTIMATED COST	FRUIT PERSISTS UNTIL
1. Cockspur thorn.....	<i>Crataegus Crus-galli</i>	15 to 25	Fruits red.....	4	\$ 3.00	All winter
2. Holly.....	<i>Ilex opaca</i>	20 to 45	Evergreen, red berries.....	7	3.50	All winter
3. Japanese barberry.....	<i>Berberis Thunbergii</i>	2 to 4	Fr. red.....	18	6.30	All winter
4. Sheep-berry.....	<i>Viburnum Lentago</i>	30	Fr. bluish-black	7	2.45	All winter
5. Arrow-wood.....	<i>Viburnum dentatum</i>	15	Fr. bluish-black	6	3.00	January
6. Oregon grape.....	<i>Berberis Aquifolium</i>	3 to 6	Fr. blue.....	4	3.00	December
7. Evergreen thorn.....	<i>Pyracantha coccinea</i> (<i>Crataegus Pyracantha</i>)	6	Fr. bright red.	15	15.00	February
8. European spindle tree.....	<i>Euonymus Europæus</i>	20	Fr. orange.....	4	1.40	January
9. Common barberry.....	<i>Berberis vulgaris</i>	4 to 8	Fr. scarlet.....	5	1.75	All winter
10. Siberian red-osier dogwood.....	<i>Cornus alba</i>	6 to 10	Red branches, fr. pearly.....	11	6.75	.....
11. White rod.....	<i>Viburnum cassinoides</i> ..	2 to 6	Fr. dark blue..	4	2.00	January
12. Cranberry-bush.....	<i>Viburnum Opulus</i>	6 to 12	Fr. crimson.....	7	3.50	All winter
13. Staghorn sumach.....	<i>Rhus typhina</i>	30	Fr. dark red....	5	1.75	All winter
14. Cork-barked spindle tree.....	<i>Euonymus alatus</i>	5 to 8	Fr. crimson.....	11	6.75	January
15. Goumi.....	<i>Elaeagnus longipes</i>	4 to 6	Fr. scarlet.....	5	2.50	September
16. Red-osier dogwood.....	<i>Cornus stolonifera</i>	6 to 8	Red branches Fr. white.....	4	2.00	.....
17. Snowberry.....	<i>Symphoricarpos racemosus</i>	2 to 6	Fr. white.....	5	2.00	All winter
18. Kinnikinnik.....	<i>Cornus Amomum</i>	3 to 10	Purple branches	4	2.00	November
19. Smooth sumach.....	<i>Rhus glabra</i>	10 to 15	Fr. crimson.....	4	1.40	All winter
20. Black chokeberry.....	<i>Sorbus melanocarpa</i>	3 to 5	Fr. black.....	3	3.00	All winter
21. Washington thorn.....	<i>Crataegus cordata</i>	30	Fr. coral red....	5	10.00	March
22. Black alder.....	<i>Ilex verticillata</i>	6 to 8	Fr. bright red..	5	2.50	March
23. Flowering crab.....	<i>Pyrus floribunda</i>	10 to 15	Fr. orange-red..	5	3.75	January
24. Morrow's bush honeysuckle.....	<i>Lonicera Morrowi</i>	6	Fr. blood red....	4	3.00	November
25. Siberian crab.....	<i>Pyrus baccata</i>	10 to 15	Fr. crimson.....	3	1.05	December
26. Chinese spindle tree.....	<i>Euonymus Bungeanus</i>	15	Fr. orange.....	2	1.00	February
27. Hardy ferns.....		½ to 3		20	4.00	.....
28. Hardy hydrangea.....	<i>Hydrangea paniculata</i> , var. <i>grandiflora</i>	6		1	.50	.....
29. Rugosa rose.....	<i>Rosa rugosa</i> , vars. <i>alba</i> and <i>rosea</i>	6	Black branches	12	6.00	January
30. False bitter sweet.....	<i>Celastrus scandens</i>	6 to 20	Fr. or-yellow ..	3	1.50	March
31. Frost grape.....	<i>Vitis vulpina</i> (<i>V. riparia</i>)	30	Fr. bluish-black	2	.70	October
32. Variegated Japanese grape.....	<i>Ampelopsis heterophylla</i> var. <i>elegans</i> (<i>A. tricolor</i>)	10	Fr. light blue ..	3	1.05	January
33. Lilac.....	<i>Syringa vulgaris</i>	6 to 12	Brown branches	3	1.50	.....

EVERGREENS AND SPECIMEN ORNAMENTAL TREES

COMMON NAME	STANDARD AND TRADE NAMES	HEIGHT (FEET)	WINTER EFFECT	NO. OF PLANTS NEEDED	ESTIMATED COST	SIZE AT PLANTING HGT. IN FT.
A. White pine.....	<i>Pinus Strobus</i>	100	Evergreen.....	5	\$ 5.00	2½ to 3
B. Nordmann's fir.....	<i>Abies Nordmanniana</i> ..	100	Evergreen.....	6	12.00	2
C. White spruce.....	<i>Picea alba</i>	60 to 150	Evergreen.....	4	6.00	2 to 3
D. Austrian pine.....	<i>Pinus Laricio</i> , var. <i>Austriaca</i> (<i>P. Austriaca</i>).....	75 to 100	Evergreen.....	1	2.00	2
E. Cottonwood.....	<i>Populus deltoides</i> (<i>P. monilifera</i>).....	60 to 150	Yellowish green branches.....	7	7.00	8 to 10
F. Silver maple.....	<i>Acer saccharinum</i> (<i>A. dasycarpum</i>).....	120	Line effect.....	1	1.00	10 to 12
G. Pin oak.....	<i>Quercus palustris</i>	80 to 130	Line effect.....	1	1.00	6
H. Oriental plane.....	<i>Platanus orientalis</i>	80	Mottled bark ..	1	1.25	8
I. Red oak.....	<i>Quercus rubra</i>	80 to 150	Line effect.....	2	2.00	6 to 8
J. Mountain ash.....	<i>Sorbus Americana</i>	50	Fr. red.....	1	1.00	6 to 8
K. Yellow willow.....	<i>Salix vitellina</i>	80 to 80	Yellow branches	1	.75	4 to 5
L. White birch.....	<i>Betula alba</i>	80	White bark, brown twigs.	1	1.25	6 to 8
M. Hemlock.....	<i>Tsuga Canadensis</i>	70 to 100	Evergreen.....	7	7.00	2 to 2½
N. Feathery retinisporea.....	<i>Chamaecyparis pisifera</i> var. <i>plumosa</i>	3 to 8	Evergreen.....	2	3.50	1½ to 2
O. White fir.....	<i>Abies concolor</i>	100 to 150	Evergreen.....	3	9.00	2
P. Siberian arborvitæ.....	<i>Thuja occidentalis</i> , var. <i>Wareana</i> (var. <i>Sibirica</i>)	30	Evergreen.....	7	7.00	1 to 2
Hedge. Chinese arborvitæ.....	<i>Thuja orientalis</i> (<i>Biota orientalis</i>).....	4	Evergreen.....	125	125.00	2 to 2½



A striking contrast. In the winter aspect of the ink berry (on the left) is actual revelry and enjoyment of the cold. The plants stand erect, and the foliage looks alive. How different it is with the Spanish bayonet, whose long, cold gray-green leaves, borne down and bent by snow and ice, seem to shiver and shrink

red fruits here until Christmas. The children can play outdoors practically every day all winter without danger of being chilled by steady, biting winds, and from the library their mother can keep her eye on them all the time."

"H'm. I really believe Mrs. Hodgkins will approve of that," I said.

"If you want to do the handsome thing," suggested the young lady, "you might let me make a grass plot of the left half of the playground, lower the other part and cement it so that the children won't get damp feet. That would be an 'extra' for me and I'd have a chance to get even with you!"

"We'll see about that. Meanwhile, what use have I got for a stable?"

"Oh, you'll want one some day, and I've placed it for you so you won't need to buy a new lot or have it next to your dining room. You can't see it from the drive because of that curve made by the poplars at 'E.' The roof will be visible, but you'll own a horse or a car some day and you'll want an attrac-

tive addition to your group of home buildings instead of an eyesore."

"Maybe," I said. "I'm glad I don't have to pay for it now. But how about all these red-berried shrubs and winter attractions. Aren't you rather overdoing it? I don't want to have an outdoor museum."

"That's just it," she exclaimed with some warmth. "I wouldn't let you have it, if you gave me a thousand dollars! That's where landscape art comes in and that's just where the enthusiastic beginner who has a good idea let's it run away with him. I've put in enough other trees and shrubs that are attractive in spring and summer to tone down the winter effect."

"One thing I forgot," I added with some humility. "Mrs. Hodgkins will certainly want some old-fashioned flowers."

"I've provided for such a possibility," exclaimed this enterprising young woman. "I've left room for a border of perennials to the right of the sundial and in front of some shrubbery so that the flowers will show

off against a good background. That isn't in the bill."

"Well, let me have a week to think it over," I said, and the young lady departed.

My wife and I struggled hard to pick flaws in that plan and we did make a few trifling changes, as a matter of principle.

I never dreamed that gardening is so expensive. Grading and fencing cost me a pretty penny. The plants cost about \$350.

One day I met one of the "big men" in landscape gardening at our club. He remarked that it was impossible for a woman to be a good landscape gardener. So I handed out my plans, told him I'd paid this young lady \$150, and asked how badly I had been bitten.

"You got a good job mighty cheap!" he exclaimed. "I wouldn't undertake a plan to harmonize all those original features in such small space for less than \$500.

I may not know the best way of employing a landscape gardener, but I believe I got everything I wanted remarkably cheap.

An Outdoor Winter Garden—By Leonard Barron, New York

REVERIES OF A FIREWORSHIPPER AND BOOKLOVER WHO HAS NO CARES FOR GREENHOUSE WINTER FLOWERS—THE PLANTS THAT REFLECT THE SENTIMENTS OF THE SEASON, AND GIVE PLEASURE WITHOUT WORK OUTDOORS

AS FOR ME," said Sydney Smith, in reply to some one who prated weakly about the joys of country living, "give me bad weather, a grate fire, and good company."

My sentiments exactly! The inside is much more to my fancy than the outdoors during the winter months. I can the most thoroughly enjoy the winter landscape, more especially when it is covered with snow, when I view it through a generous expanse of flawless plate glass window. I like it as a picture, as something which emphasizes my actual comfort by the law of contrast; and the colder it is outside, the more happy do I feel inside. I would have my garden fitted to this mood. "Plant it out with evergreens, giving

it some semblance of shelter?" "Oh dear no." True, I would shield my house, but for the garden itself I would emphasize the wintry aspect, especially where I may regard it occasionally as I sit before my fireplace and when interest in my book flags.

My ideal entrance drive is very different. Along it I would plant liberally of those dignified broad-leaved evergreens that do not look shivering cold in the winter. I would have banks and great masses of bright red-berried shrubs. Barberries, dogwoods, and viburnums would abound. I like color, especially in the winter time. Therefore the red-barked dogwood should have no little place with me. And I would deliberately plant many of these winterly-interesting

plants, for their own sakes simply, without the slightest regard for what they were or whence they came.

TYPES OF WINTER EFFECTS

The types of winter expression among plants I have roughly divided into these:

One: The red-berried and red-barked shrubs that brighten the landscape if used in sufficient quantities. Two: Broad evergreen foliage, like the rhododendron and leucothoë, self-contained, majestic, enduring. Three: The conifers; gaunt and sombre evergreens, whose only use is to keep off the worst of the cold winds and furnish a background for the cheerier conifers. Four: Plants that very plainly show the effects of cold, such as

the Spanish bayonet, which not only looks perfectly miserable in the embrace of ice and snow, but whose entire color is cold. The bare whip-like branches of the common broom—the result of centuries of exposure on windswept hills—make it a fitting companion. Five: The real winter gems, which by their color effects, harmonize with and form real miniature pictures on the snowy background. Among these, and the best examples, are the striped Pennsylvania maple and the white birch.

HOW TO AVOID MONOTONY

There is altogether too much sameness in our home grounds in winter. No one plants with an eye to winter beauty. The crude utilitarian rarely goes beyond planting a heavy screen of evergreens, to cut off the coldest winds. Sometimes, a little thought is given to the massing of shrubs which by reason of their red or yellow berries, carried well into the middle of winter or the beginning of the new year, have a beauty all their own. But I would ask your attention to quite another effect. The relations of light and shade, of mass and of line. What more beautiful than the elegance of the white birch scene as here pictured against a snow-covered slope? The white of the bark, barred irregularly with dashes and patches of black, is in the strictest harmony with the black and white touches produced by the irregularities of the snow-fall on the surrounding ground. One can hardly appreciate the garden qualities of the white birch in the summer time. Then, when its graceful foliage half obscures the satiny white bark, it is useful in the garden as a lightening object; whereas, looked at now, it appears to be a very part and parcel of nature's whole scheme, relieving the dreariness of too much flat land, while at the same time carrying all the dignity of a living tree. The white birch stands alone in this quality of snow harmony. There is no other white barked tree that is a worthy competitor.

A NOVEL IDEA: "WINTER BEDDING PLANTS"

In evergreen planting we seem to have forgotten the great possibilities that are offered by what may be called "winter bedding." Thousands of dollars are expended every year by the well-to-do in planting out coleus, geraniums, and other more or less tender bedding plants for summer brilliancy. The various bulbs are relied upon to enliven the spring landscape, and are removed in due season to make room for the bedders. These fall before the onslaught of the early frosts; the beds are cleared, and the whole garden is usually put into a state of primness and uncomfortable tidiness, coupled with bareness, until the springtime awakens the tulips once more. This can be avoided and a most interesting and normal feature added to our gardens, if the hardier evergreens are grown in pots, and planted in the beds for winter ornament. These dwarf evergreens may be retained in their pots, which during the summer time should be plunged in ashes or other cool material

that is kept properly moistened. This treatment of the beds need not interfere with the use of the spring bulbs, as the winter bedding plants may be planted behind the space devoted to the flowers.

SHIVERY EMPHASIS OF COLD

Green foliage amid the snow may be expressive of two different sentiments. On the one hand, the defiance of winter and its withering cold, on the other, an actual interpretation of the untoward conditions. Compare the illustrations at the top of the preceding page. Does not the ink-berry stand out valiantly against the landscape, the very spirit of defiance, while the yucca, in the right hand picture, expresses the very opposite? There is a lesson to be derived from this for the home gardener. Do not plant large quantities of the yucca close to the approach

to the house, or at all events where they will be conspicuously in view.

As a group to be viewed through the window from the cozy surroundings of a well-furnished and comfortably heated library, they would have a justifiable place. There is a good deal of satisfaction to be derived from a proper emphasis of the difference between indoors and outdoors, provided the observer is enjoying the luxuries. Very few plants lend themselves to this use, because those that really look uncomfortable are generally so in fact, and rarely can withstand the trials of the season.

DEFIANT EVERGREENS

The most defiant plant among the broad-leaved evergreens is unquestionably the rhododendron. It grows so freely, it makes such a dense mass, and positively enjoys its



The best tree for the winter effect of its bark. Note how it harmonizes with the snowy background, carrying out the same scheme of decoration—black patches on white. Should be planted as isolated specimens or in loosely arranged groups, where it can be seen easily. The white birch (*Betula alba*)



Along the approach to the house use freely rhododendrons edged by *Leucothoe Catesbaei*. These always look happy even in the midst of winter

own companionship to such a degree that the more of the plants you put together, the better they all do. Failures with rhododendrons—assuming of course, that the proper soil conditions of abundant drainage and absence of lime are provided—are always met where isolated plants have been set out, and they have dwindled for want of companionship. If you plant the rhododendron, by all means use the leucothoe in the foreground, to make the connection with the ground, leaving no bare stems to give a semblance of discomfort and openness. This handsome Southerner will carry itself sturdily in our Northern winters, and without the slightest appearance of ever “feeling cold.” I should plant it freely about the approach to the house and around the plantations near the home lawn.

Of the taller evergreens much has been said in the GARDEN MAGAZINE for August, 1905, and August, 1906.

The hemlock is undoubtedly the best all-round conifer for general planting, whether for individual specimens or as a hedge. It grows more easily in a greater variety of soils than any other coniferous evergreen,



Showing how the conifers furnish a garden and keep up a cosy appearance all winter



The bark of the Pennsylvania maple (white striations on green). The tree's striped character is seen to best advantage in winter

and it withstands clipping to a surprising degree. For a tall hedge, where it is not meant to be sheared into formal shape, the arborvitae will answer perfectly, but it will never attain the same height as the hemlock.

ROSES FOR WINTER

Roses there are without which a winter garden must not be. The common rugosa is sufficiently praised as a winter-berried plant; everybody knows it as such, because its hips are so large and last so long. Very few people plant the multiflora rose for its berries. It is unfortunate that they really do not last all winter, but in the early weeks, their light scarlet color, hardly bigger than holly berries, makes the plant well worth using, and even after the berries drop and the foliage has gone, a mass of this rose will always animate the shrubbery because its bark retains a lively light emerald green color. I don't want black and gray-barked shrubs. That is one reason why the barberries are not so attractive to me as some other shrubs. The bright green of the multiflora rose and of the ubiquitous Kerria pleases me greatly. On account of its winter qualities I can tolerate the profusion of its glaring yellow flowers to an almost overpowering proportion in the early summer.

ARE VARIEGATIONS WANTED?

Variegated effects in winter are not generally desirable. Or rather, I should say, they are not generally available. Moreover the very effect of the masses of shrubbery or bare growths of wood against the snow is the acme of variegation. I do not know of a more interesting tree for its winter aspect than the striped, or Pennsylvania maple. It is an ideal lawn plant in every way. The striped white and green bark is always curious and attractive. This is one of the few trees that I would have close to my window, or near a front door, because its beauty must be seen at short range for the keenest enjoyment.



The Cranberry-bush (*Viburnum Opulus*) in its winter garb. Red berries all through February! Perhaps the most variously useful of all shrubs.

There is one variegated foliage plant that is really happy amid the snow. The variegated form of the trailing euonymus never shrivels, and cut sprays in the middle of winter seem to be as full of life as on the Fourth of July. It is an ideal edging plant, and will ramble freely over stones and rocks. It will climb a wall, and clothe it with a foliage curtain that is expressive of leafiness, and is admirably suited for the smallest garden. I used to have an edging of this to the narrow flower bed which bordered the front of my house, and extended from it over a space of about two feet. Why should I plant the Madame Salleroi geranium for its white and green variegation when I have this other, hardy, and with evergreen foliage? It gives the same color effect, with infinitely less trouble—and, moreover, it gives me a furnished garden in winter. Nothing that I know unites so amiably the snow-covered lawn and the snow-bedecked dwarf evergreen shrubs that occupy the rest of the bed all winter. In between these I planted my bulbs, and at odd intervals were various herbaceous plants that flower perennially.



Is not this expressive of sweeping winds? The leafless common broom the product of ages of exposure

Red Berries that Last Two Years—By Thomas McAdam, ^{New Jersey}

THE ASTONISHING STORY OF A LITTLE EVERGREEN SHRUB—A NEW AND SINGULARLY INGENUOUS WAY OF MAKING SOMEONE SUPREMELY HAPPY AT CHRISTMAS

INCREDIBLE as it may seem, the red holly-like berries of the charming *Ardisia* actually remain attractive for two whole years and more! If you look closely at them you can tell which are the two-year-old berries. They are the lower ones and they are just a trifle darker than the year-old berries, which occupy the upper half of the plant.

As the public demand a "common" name for everything worth having, this plant might be christened the "Japanese Christmas berry," but the florists know it only as *Ardisia crenulata*. The name of "spear-flower" sometimes given it does not appear appropriate. It is incomparably the best red-berried house-plant for Christmas gifts and has the extraordinary merit of remaining in attractive condition for five to eight years, if properly cared for.

The whole bearing of the *Ardisia* is singularly Japanese, as if this gifted people had impressed upon it some of their best natural traits. In fact, it almost seems an outgrowth of Japanese art, rather than a product of Nature—not the picturesque or grotesque Japanese art, but that small formal handiwork, quiet, rich and elegant—which bears mute interest to the competent, self-contained character of the Japanese. One sees all this in the dark, lustrous, shapely evergreen leaves that last three years; in the soft, mellow glow of the ardent but enduring berries; and in the dignified port of this compact, symmetrical, little shrub.

Like everything of surpassing merit the *Ardisia* has its limitations. It always will be costly, for it takes two years to raise it from seed to the berried condition; and a really first-class specimen eighteen inches high and bearing hundreds of berries often represents five years' growth, and ought really to be worth \$5.00 or more. No wonder the demand exceeds the supply, for the ordinary florist sees little inducement to give his precious glass-house space and good coal heat for two years to a plant that will bring him no more at Christmas than a poinsettia started in May.

Like many other choice shrubs the *Ardisia* is at its best when only two feet high. After that it tends to lose the lower leaves and get "leggy." When that happens there is a notable remedy which never fails to arouse enthusiasm. You can make a deep, slanting cut in the stem just below the foliage, and cover it with moss which you must tie tightly and keep wet all the time. In about a month the moss will be so full of roots that you can cut off the old bare stem and pot the newly rooted plant, thus retaining all the beauty of a splendid old specimen while furnishing it with foliage right down to the pot. You need not lose a single berry and the plant has been known to produce a crop of its dainty, rose-red, fragrant blossoms

during the change from one root system to another. The same thing can be done with rubber plants. Not one amateur in a hundred, however, will succeed with this process, but a florist will do it for you. It is the only way to restore to their original beauty certain Christmas and birthday gifts which often have priceless associations to their owners who would gladly pay anything in reason.

Does not this suggest a new way to make somebody very happy this Christmas? Don't you know some dear old lady who treasures with pathetic devotion, for sentiment's sake, an uncomfortably large and awkward rubber plant? Borrow it for a month on the plea that you know a florist that can help it

served in every large batch of seedlings. And when the new variety is secured, it will doubtless have to be propagated by cuttings, because the seeds will give too much variation. Plants raised from cuttings make more shapely specimens because they are shorter and a foot or rarely eighteen inches wide, while those from seeds are usually only eight inches across. It is harder and costlier to raise them from cuttings, which are best made from half-ripened wood in spring.

If you give a friend an *Ardisia* this Christmas tell her she can keep it five years (eight years if she has a little greenhouse) and that it need never be without berries for a day if she will follow these directions faithfully. Keep it in a cool room in partial shade and



The best small red-berried house plant for Christmas decoration. *Ardisia crenulata*

without hurting it and give her a surprise during the holidays. The best plan is to do this after the holidays and restore it at Easter, but if you act before November 20th you may be able to restore it on Christmas day!

Somebody ought to make a life hobby of the *Ardisia* and put the finishing touches upon its perfection. We need a fast-growing variety that will branch from below instead of only at the top; will be less likely to drop leaves or berries when exposed to sudden drouth in the dwelling house and will be uniformly covered with berries that will stand out against the glossy dark leaves and never be partially obscured by them. Variations in these directions may be ob-

give it a night temperature of 45° to 50°. Wash the stems and leaves once a fortnight with strong tobacco water to prevent the large brown scale from coming. In summer, put it outdoors under a tree, and syringe it daily. Don't give mice a chance to eat the berries. Follow the general directions given in the following article.

An amusing fact about the *Ardisia* is that every berry is worth a cent. The seeds cost a dollar a hundred wholesale. Consequently a cluster two and a half inches across containing twenty-five berries is actually worth a quarter! No wonder the florist makes practically nothing out of a plant we buy for \$2.50.

Although the *Ardisia* is decorative every

day of the year, it is pleasant to know that its berries are reddest at Christmas time and the leaves are also darker and glossier then, so that our Japanese friend actually enters into the gala spirit of our holidays.

I am indebted to Mr. W. A. Manda for pointing out the peculiar merits of the *Ardisia*.

Some Other Red-berried Plants for Christmas

P. T. BARNES, New York

The costliest and the best of the red-berried plants is English holly (see page 234). Next comes the *Ardisia*, above described. The cheapest is the Jerusalem cherry (*Solanum Pseudo-capsicum*), which makes a compact plant usually about nine inches to a foot high, covered with red berries, each one-half to three-quarters of an inch in diameter. The berries are green at first and change to scarlet. These little plants are usually grown from seeds which are sown in

February or March indoors, and grown during the summer in the open ground. They are lifted and potted in August and then grown in a cool house, lest they color too soon. A good specimen costs about seventy-five cents.

If you get a Jerusalem cherry this Christmas, you can keep it several years by withholding enough water after the holidays to rest it, but next spring you must cut it back to mere stubs, to prevent it from getting straggly, and the best place to start new growth is a hotbed. You can get a lot of these cherries without expense by making cuttings in February or March. The best plants, though, are raised from seeds every year, and you may pinch back the shoots in order to get more compact specimens.

GAY LITTLE PEPPERS

Of late the florists have been growing some of the small red peppers in pots for Christmas. The varieties usually grown (*Celestial* and *Kaleidoscope*) bear a profusion of small



The cheapest Christmas berry—Jerusalem cherry. Will drop its leaves in one night if coal gas is present

plants, each of which was about one and one-half to two feet in diameter, which he sold for \$25.00 apiece.

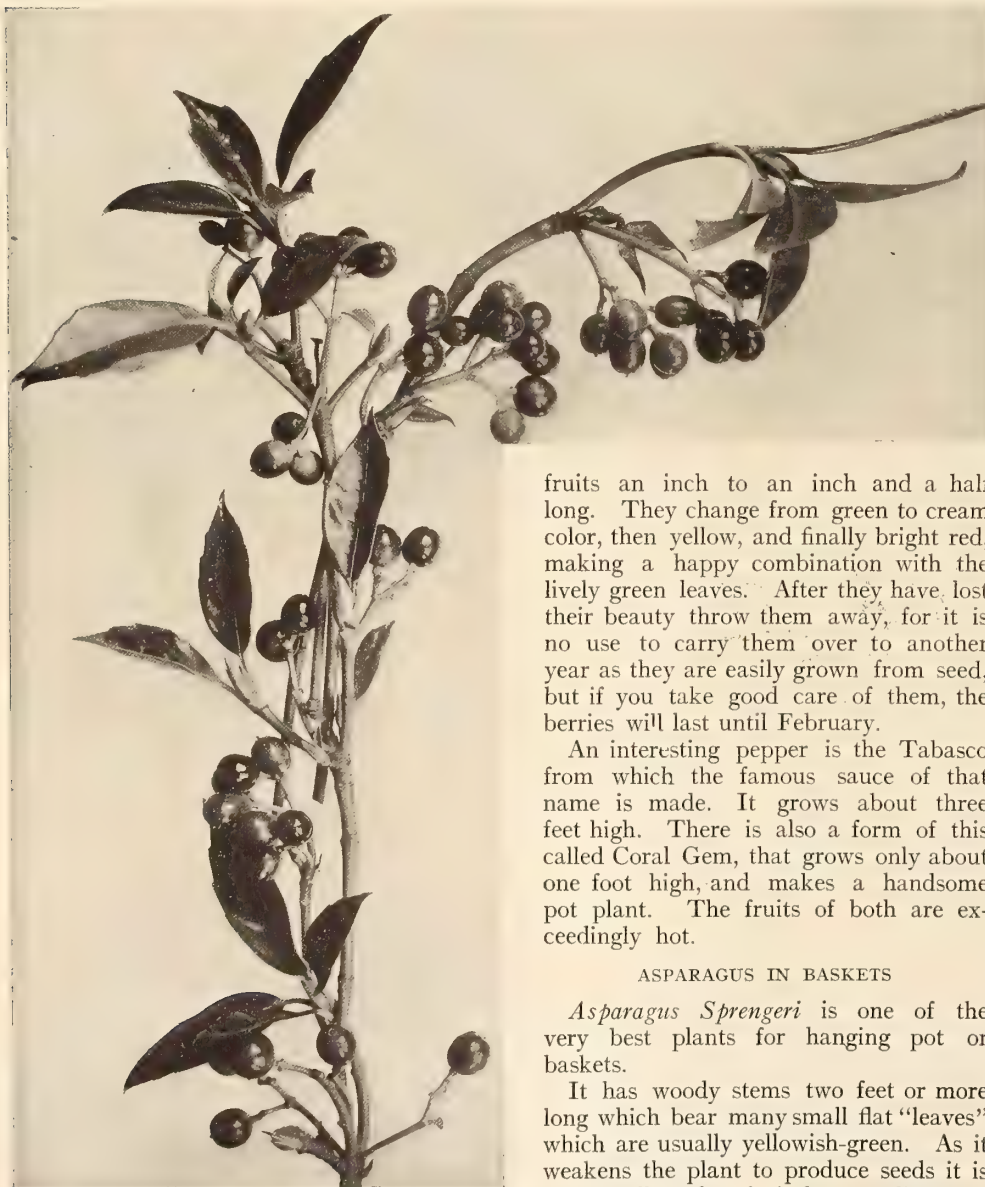
TWO BROAD-LEAVED EVERGREENS

Skimmia Japonica is a broad-leaved evergreen which is not hardy north of Washington, D. C., but, although rather a slow grower, it is one of the handsomest of the red-berried plants which may be had for Christmas decoration. If seeds are sown in the fall and the young plants carried over winter in a cool house, and planted out in the garden in good soil, beautiful little plants will be had for potting in October, which will bear a good crop of berries that will last on the plants all winter. These berries are bright scarlet or coral red, slightly angled and about one-quarter of an inch across.

With the best of care and cultivation these plants will probably never exceed a height of two or three feet when grown in pots. One drawback to their cultivation is that only one kind of a flower is borne on a plant so that if one wishes berries he must see to it that he has both staminate and pistillate flowers.

In addition to the winter decorative qualities of this plant, it is a beautiful plant in the spring, when in flower. It has many small yellowish white flowers one-quarter of an inch across, which are borne in the axils of the leaves in clusters two inches in diameter.

Another broad-leaved evergreen which is not hardy here but can be successfully grown in a cool room is *Aucuba Japonica*. It is hardy in the South. It is a shrub four to fifteen feet high with beautiful dark green leaves. Like the *Skimmia*, the flowers are not perfect so if fruit is wanted care must be taken to grow both sexes and when in flower shake the staminate ones over the pistillate ones that they may be fertilized. To carry this plant over winter keep it in a deep cold-frame or cool room which do not freeze and keep the soil somewhat dry.



Fruiting form of *Aucuba Japonica* (not hardy). Grow both staminate and pistillate plants and shake the pollen over the latter or you will not get fruits

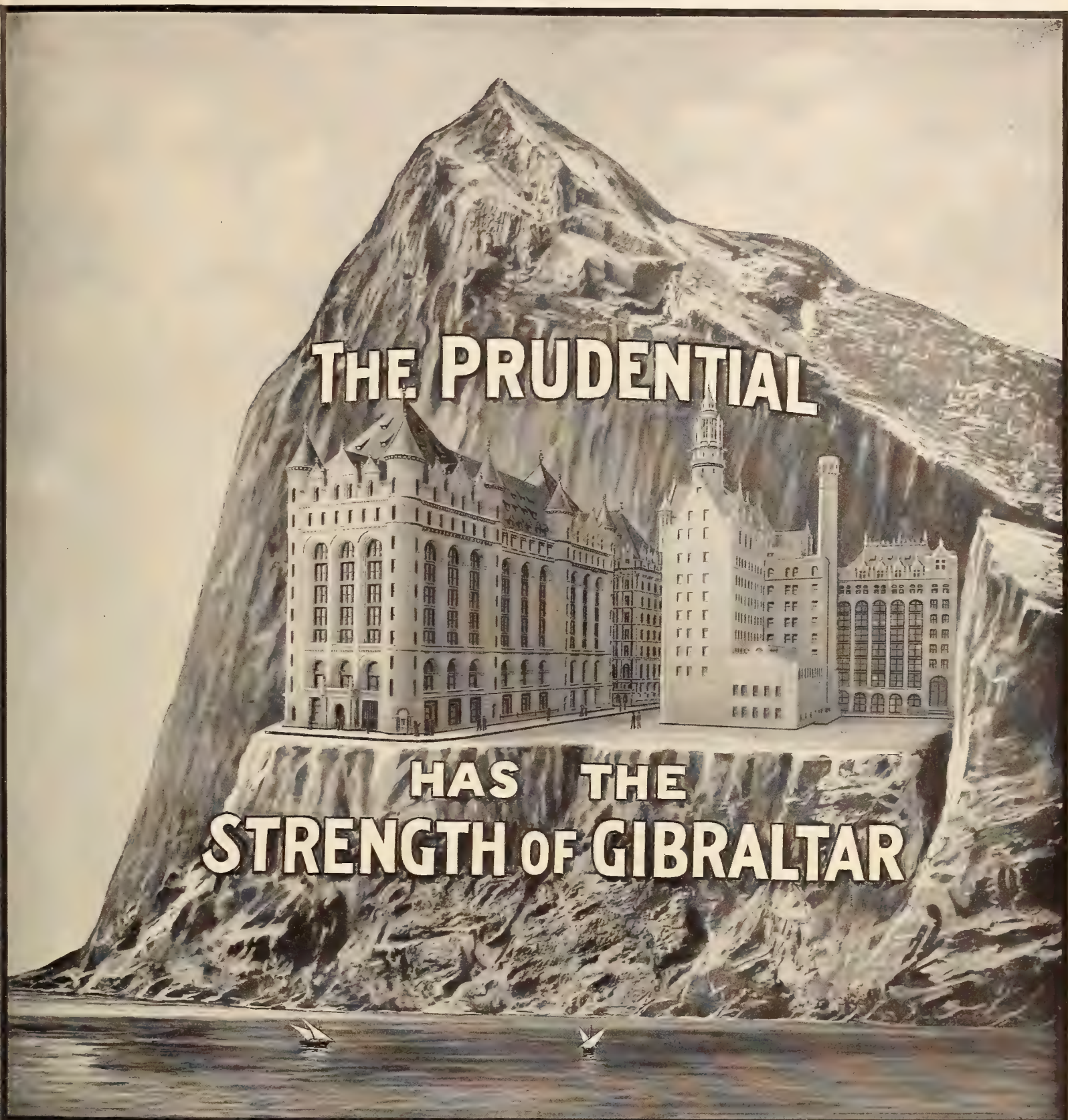
fruits an inch to an inch and a half long. They change from green to cream color, then yellow, and finally bright red, making a happy combination with the lively green leaves. After they have lost their beauty throw them away, for it is no use to carry them over to another year as they are easily grown from seed, but if you take good care of them, the berries will last until February.

An interesting pepper is the Tabasco from which the famous sauce of that name is made. It grows about three feet high. There is also a form of this called Coral Gem, that grows only about one foot high, and makes a handsome pot plant. The fruits of both are exceedingly hot.

ASPARAGUS IN BASKETS

Asparagus Sprengeri is one of the very best plants for hanging pot or baskets.

It has woody stems two feet or more long which bear many small flat "leaves" which are usually yellowish-green. As it weakens the plant to produce seeds it is seldom allowed to fruit, but a well-fruited specimen is certainly a beautiful sight. I know one florist who had a pair of



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How to Keep Plants Healthy in the House

THERE is no more cheerful sight at Christmas time than the red-berried plants which one may see in the florists' shops. There is a warmth and glow about them which put light into the short dark sombre days of the holiday season. One strong point in favor of these is the length of time which they will remain decorative, provided the plants are given good care. They will last all winter and at least one of them for a year.

In order to have the berries hang on these plants for weeks after taken home, put the plants in a position where they can receive the light, and if possible a little sunshine, each day. Nothing will kill plants so surely as putting them away in some dark corner where they "look pretty" but where no sunlight ever comes. Too warm a room will make them lose their leaves, but this may be counteracted to a great extent if there is always sufficient moisture in the air. Your house will be a healthier place for your family and your plants if you follow these directions. In properly constructed hot-air furnaces there is between the fire-pot and outside jacket a receptacle which will hold twelve to fifteen quarts of water. All one needs to do is to fill this each morning when caring for the furnace. If the furnace does not have this arrangement keep a vessel of water in the room or put a small dish in the register, and see that there is always some water in it. If the house is heated by stoves there is always a place where a small dish of water may be put. In fact many of those made to-day have on the top an urn for this purpose which is coated inside with porcelain. If the house is heated by radiators that are connected with steam or hot-water boilers, place a dish of water on the radiator or have a flat can that may be hung between it and the wall.

The greatest enemy of plants, when kept in houses heated by hot air furnaces or coal stoves, is coal gas. If there is the slightest trace of it in the air such plants as the Jerusalem cherry or the ornamental peppers will drop their leaves in a single night.

Illuminating gas is also very injurious to plants. The effect of even a very slight trace in the atmosphere is to retard the development of the younger leaves of most plants. The plants do not die, but simply "stand still," and so eventually become stunted. In the case of flowering plants the effect is that the buds may just show color and then wither. The guess is usually made that they have been exposed to a chill. Plants with thicker-

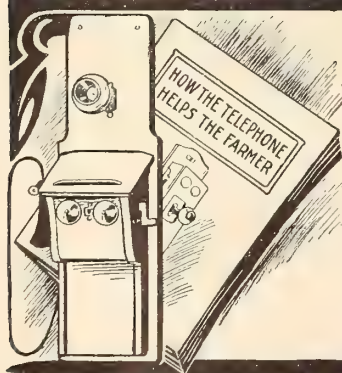
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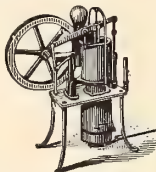
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New York.

P. T. BARNES.

A Home-made Japanese Garden

PEOPLE buy miniature Japanese gardens from the florists and pay enormous prices for them, but it is much cheaper, also far more amusing, to turn landscape gardener on a small scale, and make them yourself. For friends that love their gardens, but live in town in the winter, these small affairs make most acceptable Christmas presents. I had noticed one of prohibitive price in a shop just before the holidays last year and went home to ponder over the fact that it was merely a very charming arrangement of moss, white sand, and an evergreen seedling or two in a dull gray wooden box. I decided to try my hand.

The grocer provided the box (a square one is best), which was sawed down so that it was only two and one-half inches deep, and prepared as you would an ordinary flat. A dull oak stain, and a few Japanese letters burnt in on the sides, soon transformed what had once held somebody's superior cocoa into a thing of rare antiquity; and when filled with sand and rich earth to the depth of two inches, the box was ready for planting.



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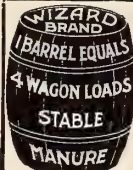
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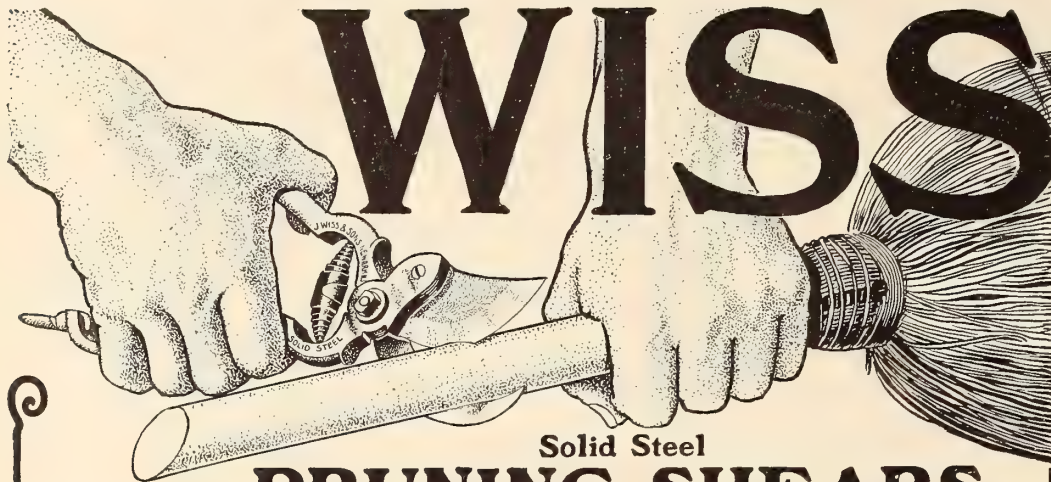
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KELLER'S GRACEFUL FOXGLOVES



FOXGLOVES and old-fashioned gardens! The one suggests the other. But aside from that subtle association there is an individuality and charm about the foxglove that attaches to no other of our hardy herbaceous perennials. It is at home in shady nooks, among shrubbery, or in the open border; massed or in single clumps, its graceful yet substantial spikes of flowers, towering sometimes up to six feet—in early summer give an unusually rich quality to the smallest garden. When out of flower, the plant itself is a rosette of handsome downy foliage.

For filling a narrow strip of bed near the house, or as a border, to give stately dignity to the walk down the garden; and again dispersed in irregular clumps in the shrubbery, we know of no flower that will give greater satisfaction. The wild plants are uniformly of a delicate pink color. We have them, too, and also a rich collection of deep red, pure white, and mauve, and lilac in many shades; also beautifully spotted and mottled flowers. We offer the following kinds:

Ambigua (brown) *D. Siberica* (cream)
Orientalis (yellow) *D. Thapsi* (purple)
Gloxinaeflora (white to pink) *D. Purpurea* (Common Foxglove)

All \$1.50 per dozen, \$10.00 per 100

Let us send you our beautiful Fall Booklet, "Old Fashioned Flowers and the Newest Varieties."

J. B. KELLER SONS, Rochester, N. Y.
Specialists in Hardy Perennials

in the box, and requires much planning and cutting down to bring out the right effect of perspective and relative proportion. Then insert in the moss the roots of the dwarf trees, giving them plenty of room to spread out, since they cannot grow down. Next, place tiny ferns or small orchids (nurseymen have the Goodyera for sale) in the nooks and crannies of miniature hills, and spread white sand evenly over the paths and level places. Finally, a gate made from a wooden cigar box may be set in, while a flag of the Rising Sun on a match stick will proclaim the whole to be a garden of Japan.

And all that is needed is some moss, a few seedlings, bird-sand, and a square box; and after it is completed, if you will spray it well once a day, your garden will flourish till the trees eventually outgrow the neighborhood.

New York.

M. K. FARRAND.

Tying up the Christmas Presents

WHEN sending plants to your friends be very careful how you pack them. Plants like azaleas and Jerusalem cherries should be first tied in. Put a string around the outside of the plant and draw the branches in toward the centre.

To wrap them, first cover the top of the plant with tissue or oiled paper, which is held in place by string or pins. Then lay the plant down on a table and roll it up in a single or double sheet of cotton batting. Outside of this comes the wrapping paper. Unless the plant is going a very short distance and the weather is very mild the wrapping should consist of three to six thicknesses of newspapers and an outside wrapping of clean manila paper to give the package a neat appearance. When doing up the plant always include the pots in the wrappings. Never have any strings passing over the top of the package. The errand boy would be liable to use it for carrying the bundle and if he did the wrappings are more than liable to come off and the plant will get frozen. The only way to carry a plant is by the pot.

If you are sending cut flowers it is better to use a wooden box. Line the inside of the box with a half dozen thicknesses of newspapers and arrange the sheets so that they will overlap one another at the top when closing the package. Inside the newspapers place a sheet or two of cotton batting and then a thickness of oiled paper. Have the box small enough so that the flowers will have to be crowded in, for loosely packed flowers are much more easily damaged by handling than closely packed ones. With a watering can or hand syringe give the contents of the box a dash of water and close up. I have packed flowers so closely that it took considerable pressure to get the cover down where it could be nailed, but after three or four days' knocking around by neglect of the carrier to deliver them they came out looking as fresh as could be. If they had been loosely packed, they would have been utterly spoiled.

In extremely cold weather I have found it a good practice to put in the boxes with the flowers tightly corked bottles of hot water.
New York. PHINEAS NOLTE.

Dreer's GARDEN BOOK

for 1907

A Complete Guide to Growing Flowers and Vegetables

will be mailed in January to all
customers for three years past.

It will contain four beautiful colored plates of flowers and vegetables, and 224 profusely illustrated pages besides covers in colors showing several varieties of flowers which we are specializing.

The text matter will be made up into departments and there will be a complete index, making it easy to find whatever is wanted.

Particularly interesting will be the department devoted to Hardy Perennials, those old fashioned flowers we all love so well. Anticipating the growing demand for this class of plants, we now offer the largest collection and finest varieties.

The Rose department will contain the cream of newest kinds of this beautiful and fragrant flower.

Dreer's Garden Book has always been the best and most complete catalogue, but the 1907 edition will be even an improvement on previous issues. Whatever is worth growing, Flowers and Vegetables, you will find in **Dreer's Garden Book**.

REMEMBER if you have been a customer within three years, the book will be mailed to you when ready without your asking for it. But if you are not a customer and want to post yourself on gardening topics write for a copy and mention this magazine.

HENRY A. DREER,
Philadelphia, Pa.



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By
CHARLES
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NO BEGINNER, old or young, can fail to appreciate this book, for it really gives a fundamental knowledge of how to conduct a farm with the least expense and the largest return. There are sixty-three full pages of helpful illustrations.

The price is extremely low for a work of such value: \$1.00 net, and 10 cents additional if sent by mail.

CONTENTS

PART I.

- | | |
|--------------------------------|-----------------------------|
| CHAPTER | CHAPTER |
| I. Introduction to Plants | IX. Seeds. |
| II. Roots. | X. Seed Planting. |
| III. Soils | XI. Spading and Plowing. |
| IV. Relation of Soils to Water | XII. Harrowing and Rolling. |
| V. Forms of Soil Water | XIII. Leaves. |
| VI. Loss of Soil Water. | XIV. Stems. |
| VII. Soil Temperature. | XV. Flowers. |
| VIII. Plant Food in the Soil. | |

PART II

- | | |
|--|------------------------------|
| XVI. Fertile Soil. | XXI. Commercial Fertilizers. |
| XVII. Soil Water. | XXII. " " |
| XVIII. The After-Cultivation of Crops. | XXIII. " " |
| XIX. Farm Manures. | XXIV. Rotation of Crops. |
| XX. " " | XXV. Farm Drainage. |

COUNTRY LIFE
IN AMERICA



THE WORLD'S WORK
FARMING

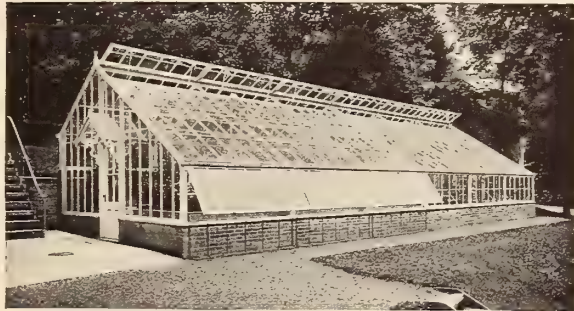


THE GARDEN
MAGAZINE

DOUBLEDAY, PAGE & Co. NEW YORK.

HOW TO GET STARTED

GETTING started is the whole difficulty after all—most everybody actually wants a greenhouse or conservatory, but just how to go about it, to find out what is best adapted to both the needs and the pocketbook, is the trouble. You may want to avoid going into it seriously at this very time, but would like to look forward to having one in the spring—you desire some well digested, freely illustrated little booklet on the question, telling how to go about it—you want it to come from a firm who will not try to talk you into building a larger house than you can care for, and above all you must have pleasant dealing. We can help you. Send 5 cents in stamps for "How to Get Started with a Greenhouse"—it will give you the very information needful, and when ready to go further, write



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Notice this sketch of a Wall Fountain. Would it not make a delightful feature in your garden?

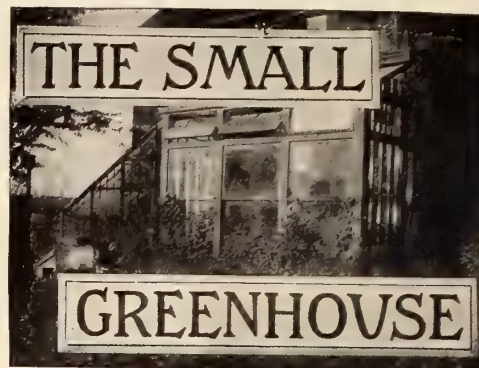
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Rhubarb and Asparagus all Winter in a Hotbed or Frame

RHUBARB can be forced any time after December 1st in a hotbed, or frame heated by pipes, in a mushroom house, root cellar, under greenhouse benches, or in the cellar near the furnace, with but little expense or trouble.

To get the best results, select good, strong roots from three to four years old. Dig the roots after a few hard frosts, place them singly on top of the ground, and cover lightly with soil, to protect them from the air. Let them remain here for two or three days, till they have been slightly frozen, as they then force much better; then take them into a cellar, temporarily, and pack closely together, covering thoroughly with good coarse litter, to keep them moist, until needed.

IN THE CELLAR

When ready for forcing in the greenhouse, or wherever it is decided to place them, make a box two feet wide and twenty inches deep, and as long as necessary to accommodate the plants. For drainage, put in a layer of broken crocks or cinders one inch deep, and over this a layer of coarse manure or leaves, on which to set the roots. Plant in good rich soil, covering the crowns or tops from two to four inches deep. Firm the soil well, give a thorough watering, to settle the soil, and keep a uniform temperature of 50° to 55°. Judgment and care must be used in after treatment. Avoid watering overhead, but keep the soil moist.

IN HOT BEDS OR FRAMES

When planting in the hotbed a good depth of manure is required—from eighteen inches to two feet—and six inches of soil over it to prevent the roots from burning.

In a frame heated by pipes similar treatment to that in the greenhouse or cellar may be given. When grown in this way the sash should be shaded or covered with some material to keep out the sunshine.

When the stalks have attained a height of from ten to fifteen inches they are ready for gathering. Care must be exercised in doing this to grasp the plant well down into the crown and give a sharp pull with the hand, as they are so brittle they break very easily. Rhubarb will be ready for use in about four weeks from date of planting. Forced this way, three roots at each successional planting, will supply a moderate sized family until a crop can be procured out-

TULIPS

Iris
Lilies
Hyacinths
Daffodils

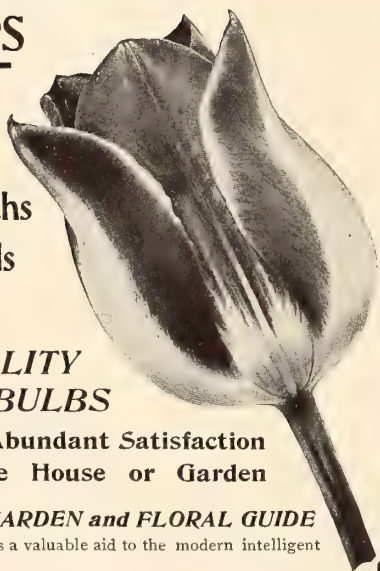
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The HOME MAGAZINE not only *interests* but also instructs and educates *every* member of the Family Circle—Big Folks, Little Folks, Mother, Sister, Brother, and *all* who dwell under the roof tree.

It is for the Home Builders, Home Makers, and Home Lovers—the *only* periodical of its kind published anywhere in the wide world.

We do not claim, mind you, that this is the *only good* magazine; such a claim would be not only false but foolish as well.

Because there are *many* publications of sterling worth which enjoy well deserved popularity.

There are Women's Magazines, the Young People's Magazines, Periodicals for Children, Magazines for Men, and all sorts of Scientific, Religious and Literary Publications.

—But, there is but *one* high grade Magazine edited and published *exclusively* in the interest of the home.

We want to emphasize this statement with all the power at our command, because it is a matter of no little importance to YOU, and to Home loving people everywhere, to know that at a mere trifling expense it is now possible to secure a publication of such thoroughly satisfying *quality*.

So, just say to yourself: "The HOME MAGAZINE is *different* from all others. It is filled to the brim with optimism, helpfulness, inspiration and good cheer. It is for *all* the home folks. I want it for *my* home. I am going to subscribe for it *today*."

Then, DO IT, Sir or Madam! We say to you in all sincerity that you will never regret the day that you saw this offer—

—IF YOU TAKE ADVANTAGE OF IT.

THE HOME MAGAZINE is issued monthly. Its scope is as wide and as varied as the interests of the family, with pleasure and value for men as well as for women.

Feature articles of peculiar charm and vitality appear in each number.

The Master Writers of Fiction contribute wonderfully fascinating stories of Love, Romance, Mystery, and Adventure.

The best artists illustrate them.

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These names carry their own guarantee of highest artistic merit.

Men and women of approved ability and experience are in charge of the departments, which cover every interest that centers in THE HOME.

The department devoted to landscape and flower gardening is contributed each month to the HOME MAGAZINE by Mr. Eben Rexford, author of "Home Floriculture," etc.

Mr. Charles S. Sedgwick, the architect, contributes practical plans for home building.

The department of Hens and Chickens is under the management of Miller Purvis, the well-known editor of the well-known magazine, *Poultry*.

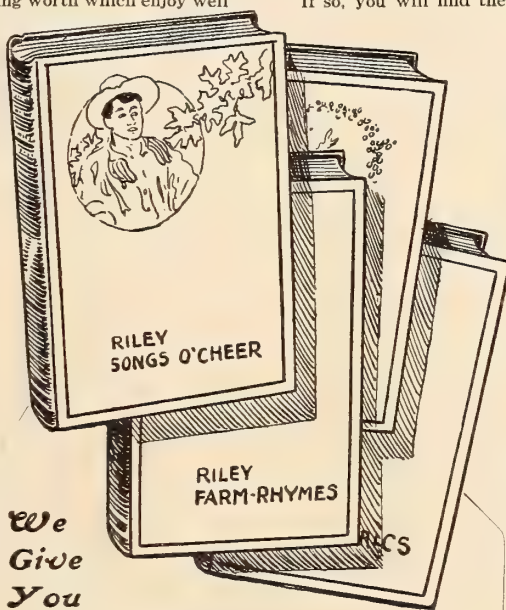
Minnie McIntyre, editor of *Bit and Spur*, has charge of the department, The Horse and the Stable.

The department, The Dog and His Care, is conducted by Eugene R. Cole, editor of *Dogdom*.

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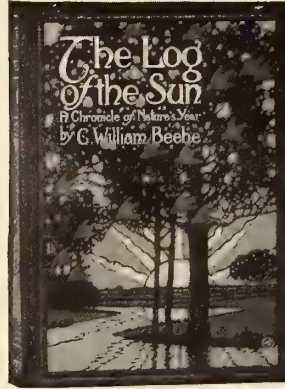
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* Pine growing on rock with Dwarf Azalea, which will be in full bloom by Easter.

doors. For succession, plant from twenty-five to thirty days apart. Victoria and Linnaeus are the best two varieties.

BOTTOM HEAT FOR ASPARAGUS

Asparagus can be forced in much the same way as rhubarb. Select good strong roots, three years old. After they have frozen hard in the ground, dig them up, and place them in a cellar, covering well with soil or sand. Keep them moist until needed. Asparagus, to force properly, requires a good bottom heat of 65° to 70°. A box or bench about eight inches deep is sufficient. Plant in good, rich soil, covering the crowns one to two inches deep, firm the soil around them well, and water thoroughly at all times. The top may be mulched with fresh stable droppings. It will be ready for cutting in about three weeks.

When about eight inches high, sever the stalks with a sharp knife, well underground, exercising care not to damage other young shoots. For succession plant every three to four weeks. The best varieties for forcing are Colossal, and Palmetto.

New York.

GEORGE STANDEN.

GARDEN**The Best Lime-Sulphur Wash**

THE San José scale is the most pernicious insect infesting trees and shrubs. During December the most effective work can be done against this most destructive enemy of our fruit trees. There have been many substances, such as lime-sulphur wash, crude oil, whale oil soap, and proprietary compounds, recommended for its extermination, which have been more or less effective.

In Bulletin 107 of the Illinois Agricultural Experiment Station, Prof. S. A. Forbes, State Entomologist, reports the results of an extensive experiment which was begun on an orchard in January, 1905, to determine which of all the insecticides recommended for the scale was most efficient.

The result of the test was that the cheapest of the washes, counting only the cost of materials, was found to be the most efficient.

This wash is made as follows:

- 15 lbs. lump lime,
- 15 lbs. sulphur,
- 50 gallons water.

Add enough water to the sulphur to make a thin paste, place this paste in twelve gallons of almost boiling water. Then add the lime, and boil the mixture for forty minutes, stirring it thoroughly all the time. Strain, and add water to make fifty gallons.

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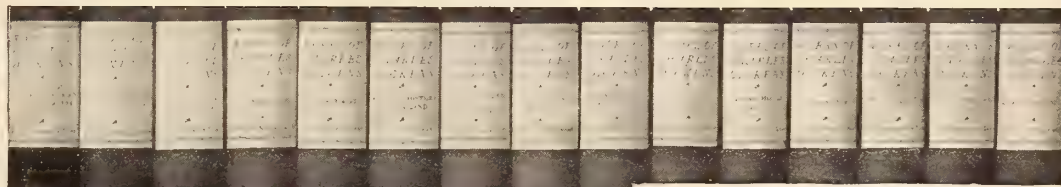
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It is not the first cost that determines the expense of keeping a building protected with paint, but the first cost plus the cost of renewal in a given term of years. If you must repaint five times with one paint against three times with another paint, the latter is the cheaper, no matter what the initial cost. OXIDE OF ZINC in paint lengthens the intervals between renewals; consequently paints based on OXIDE OF ZINC are not only better but cheaper than other paints. Our pamphlet, "Paint: Why, How and When" (free to property owners) explains the matter.

The New Jersey Zinc Co.

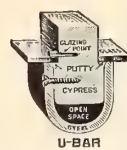
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We do not grind zinc in oil. A list of manufacturers of zinc paints sent on application.



No need to build a potting shed for the heating plant—this boiler is placed in a nearby building. You might do the same.

A Pleasure Made of Winter

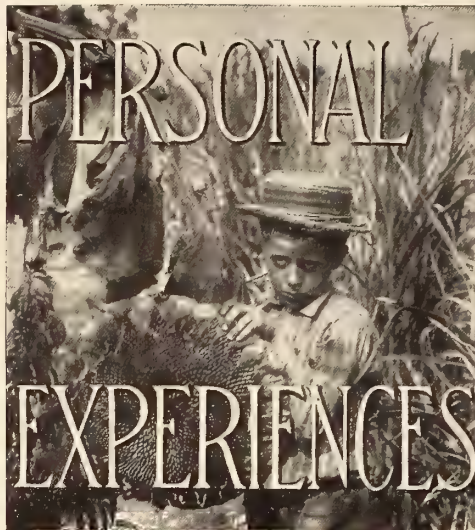


HAVE you ever longed to have a cheery, happy sort of a place where right through the winter months you could dig in the earth, plant seeds and watch them grow just as you do with such pleasure and benefit in the summer? The feel of the warm sun on your back, soothing and driving dull care away while you make things grow in Mother Earth. What you want is a garden of glass so summer can be yours the whole year 'round. Not only a summer temperature, but an attractive, bubble-like enclosure with hardly anything but glass between you and outdoors. That's the kind of greenhouse the U-Bar construction makes, and we are the only U-Bar builders. Send for our catalog. Build at once and have a chapter from Florida through January, February, and March.

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The Suckering Elm in California

THE cork-bark elm (*Ulmus racemosus*) is used to a considerable extent as a shade tree in cities on the coast of California. It is a very rapid grower, has a dense, clean foliage, but produces many suckers. It sends long underground roots twenty feet or more into nearby lawns and if the tree is cut down the suckers will fill the lawn with bushes. These roots seek moisture at long distances from the tree. I have seen beautiful gardens ruined by these suckers. Here in Berkeley no more will ever be planted.

California.

ELLA C. POND.

When to Plant Eremurus

THE impression given in the September GARDEN MAGAZINE that if eremurus is planted after the first of September it is not likely to succeed is hardly in accord with my experience here in Northern Vermont. I have grown eremurus for twenty years, planting it nearly every fall, and I have never set any as early as the first of September. Often the roots have not reached me until October and once they arrived from Europe so late that it was necessary to winter them in a cellar putting them out in the early spring (April). This would not have been successful had not the cellar been very cool. Most of the plants bloomed and all lived. I have seen little difference between October 1st and September 1st for setting eremurus. I think that any time between August 15th and October 10th would do.

Charlotte, Vt.

F. H. HORSFORD.

ANOTHER GROWER'S EXPERIENCE

My experience with eremurus has been that early planted roots have *never* failed to grow, although they will not always flower the first year. While it is possible that they might live if transplanted as late as October, they are not likely to give as good results as those set out earlier.

The largest grower I know advises planting in August. He prefers to reset all unsold roots not later than September 15th and refuses all orders received after that date. The purchaser of comparatively expensive plants like eremurus surely deserves to re-

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Should a permanent place for planting not be available so early the crowns may be carefully potted and kept during the winter in a cool greenhouse or lighted cellar and watered sparingly. In the spring they may be planted out, without disturbing the roots.

New York.

W. N. CAMPBELL.

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TWO cents' worth of corn seed was planted about the middle of July, allowing from three to five seeds in each hill. I covered these seeds with a little soil, pressed this soil down a very little with my hoe. In about two weeks' time my plants began to sprout up.

I watered the plants every evening, and in a short time I noticed little bits of silk tassels hanging on the stalks. In another week I saw small ears on the stalks. These soon ripened, and I had corn.

I had five dozen ears of corn. The first two dozen I sold at twenty cents per dozen. Another dozen and a half I sold at fifteen cents per dozen. This made a total of sixty-three cents I made out of that corn, besides having some ourselves. Then a man bought the corn stalks from me for fifty cents. This made \$1.13. My seeds cost me two cents, so I cleared \$1.11.

Ohio.

LILLIE KOCH.

The Common Barberry

THE sprays of beautiful scarlet berries on this month's cover are those of the common barberry (*Berberis vulgaris*), one of the best shrubs for planting on the home grounds for winter effect. In the spring its gracefully arching branches are loaded with clusters of bright yellow, fragrant flowers which with the light green of the young foliage make a pleasing sight. In the fall the flowers are replaced by berries, which persist until February unless eaten by the birds. The barberry may be grown as a specimen plant on the lawn, or in masses, and it makes an impenetrable hedge.

It does not need much pruning to keep it in good form; merely remove those branches that rub against any others and cut back any that may be growing so that they tend to destroy the general even form of outline.

The common barberry is found growing abundantly in old pastures and in abandoned lands in New England, and the fruits are much prized for making "shoe-peg" sauce. It is a native of Europe.

Plants are easily grown from seeds sown as soon as ripe or stratified in sand and sown in April. Before sowing or stratifying remove the pulp from the seed. This is easily done if they are put in a tub and dampened with water and allowed to ferment just enough to loosen the skins, which will then wash off very easily.

There are yellow-, violet-, and black-fruited varieties, and a most popular form is the one with purple-colored leaves (var. *atropurpurea*), which is the only form that comes fairly true from seeds.



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ANSWERS



to
QUESTIONS

[It is the earnest desire of the editors of the GARDEN MAGAZINE that its readers call upon them when in need of help in solving garden problems. Will all those who write for information, be careful to attach their name and full address so that they may receive an immediate answer through the mails when the season renders it necessary? The magazine is made up so far in advance of publication that it is not possible to give immediate attention through its columns.]

CAULIFLOWER UNDER GLASS

G. S. H., New York—Sow seeds in December and as soon as the plants have made a true leaf transplant into 3-inch pots. As soon as the pot is well filled with roots plant out on benches in a good rich, heavy, well-drained soil. Plant fifteen inches apart each way. Give a temperature of 45° at night. Early Snowball and Gilt Edge are good varieties for greenhouse culture.

STORING CHRYSANTHEMUMS

H. G. T., New York—The best treatment to give Chrysanthemums after flowering, is to plant them in a coldframe in ordinary soil (it is not at all a bad practice to allow them to freeze, but not too hard, during January and February) and keep them covered with mats and shutters. Cuttings from plants that have had a thorough rest do better than from those that have not rested.

TEMPERATURE FOR FUCHSIAS

P. S., Vt.—Fuchsias need a night temperature of about 55°. With these, as everything else, the temperature is allowed to rise 10° on cloudy days and more when the sun shines. Blooming plants may be grown from seed in one year, but they are usually grown from green (but nearly ripened) wood cuttings taken in December or January. Blooming plants may be had in five months from cuttings. Make the cuttings two joints long.

GETTING RID OF STUMPS

E. F. L., NEW JERSEY—An easy method of disposing of stumps is to bore a hole in the stump, in the fall, one or two inches in diameter and eighteen or twenty inches deep, and into it put a couple of ounces of saltpetre and fill with water. Now drive a wooden plug into the hole. The following spring remove the plug, fill the hole with kerosene and apply a match. This will make a smouldering fire which will burn clear to the ends of the roots, leaving nothing but ashes.

WHY HOLLIES FAIL TO FRUIT

R. A. K., New York—All the ilexes are dioecious—the staminate and pistillate flowers are borne on different individuals. It is therefore very important to secure both forms of the plant when buying, or transplanting from the wild; otherwise fruit will not be borne. This is probably the reason why the plants of the black alder (*Ilex verticillata*), failed to bear its beautiful red berries in the shrubbery after it had been transplanted from the woods. This is why the holly so often fails to fruit. For further information on the hollies see the article "All the Hollies Worth Growing" on page 234.

DRAINED GROUND EARLIER

H. J. B., Mass.—It will be to your advantage to tile drain the land. Land which is drained suffers less from drought than that which is undrained. Well drained soil will become mellow, mealy, and absorbent as it dries and will absorb the slightest precipitation; it will even absorb the dewfall. Undrained soil dries slowly, and shrinks and cracks while drying, allowing the sun and air to penetrate it, and it also holds the frost much longer. In well drained soil, the surface of which is kept cultivated, the roots go deep, finding sufficient moisture for the plants, though no rain fall for a long season.

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1907



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The March Gardening Manual will be a real manual for the year's gardening, and will be supplemented from month to month by other gardening articles. ¶ Here are some other subjects for 1907:

Outdoor Sports
Country Places that are Inspirations
The Management of the Country House
The Vegetable Garden
Poultry
Automobiles
Horses and Live Stock
The Home Flower Garden

Trees and Shrubs
The Home Grounds
Furnishing and Decorating
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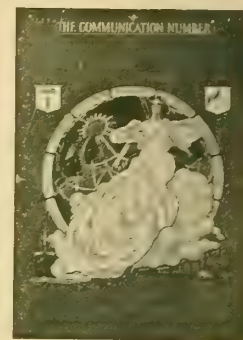
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A beginning will be made in the same number of some of the noteworthy series planned for later issues:

The Trusts From the Inside. How far are Messrs. Morgan, Rockefeller, Harriman, Havemeyer, and other magnates public enemies, and what is their service to the public. An intimate study of the Trusts as they affect the daily lives of all of us.

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Does Harvard Do Its Job? This will be one of a series of unsparing investigations of the kind of education the big (and some of the little) colleges are really giving. Are our colleges doing what we expect of them?

The Making of Investments. Personally helpful monthly articles by Mr. C. M. Keys, now a member of *The World's Work* staff and formerly railroad editor of the *Wall Street Journal*

Medical Sense and Nonsense The Right Way to Keep Well. If people knew and practised what the advance of medicine has discovered, there would be fewer fools and fewer physicians, but healthy human beings would be commoner. This series gives the needed illuminating facts.

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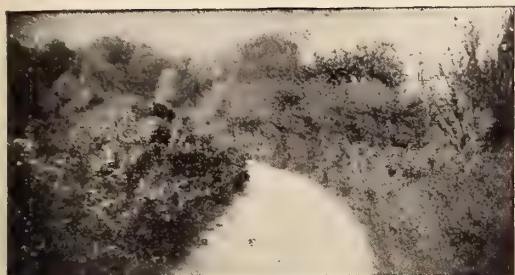
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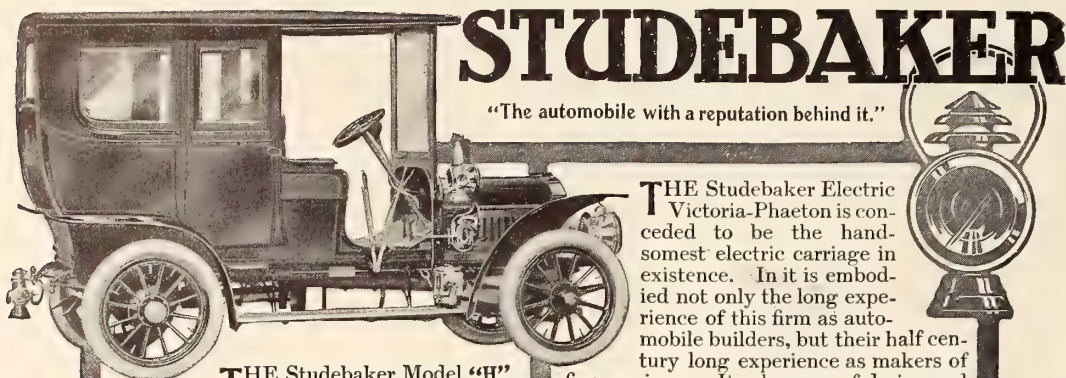
The publishers of the GARDEN MAGAZINE have found it necessary to increase the price of that magazine for single copies. Hereafter they will be 15 cents instead of 10 cents, except the double Spring and Fall Planting numbers, which will remain 25 cents each. The yearly subscription rate will for the present remain the same,—\$1.00, including all double and special issues.

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The Best Gardening Books for Christmas Presents

THE year 1906 has been a remarkably sterile one for gardening books. The only brilliant exceptions I know are two.

Miss Shelton's "The Seasons in a Flower Garden" is the best dollar book on the home flower garden ever published. Surely this is the briefest book ever written by a woman. It boils over with little planting tables, useful lists, calendars, statistical matter, rules, recipes and directions.

Fletcher's "How to Make a Fruit Garden" is certainly the most beautiful, photographically illustrated fruit book yet published, and the only one that is aimed simply and solely at the American amateur. It is a great relief to have a book that actually assumes that you have a home, and are not growing fruit for a living. It makes a big practical difference, too.

Waugh's "Dwarf Fruit Trees" is a good little fifty-center on a subject of increasing importance. It hardly has the "gift quality," but it's worth having.

These are small things, however, compared with what we ought to give our garden-loving friends. It has been a good year, and we ought to give something inspiring, even if we only give a letter next year. I want to tell you about some books whose pages I love to turn over with my gardening friends.

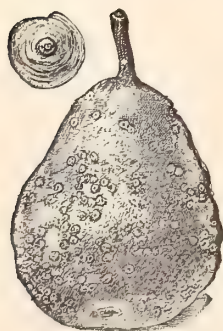
The most beautiful colored plates of gardens ever published are the fifty by Elgood, in "Some English Gardens." One can sit and dream over that book by the hour, and plan gardens by the dozen. The color combinations are a perennial joy. And for a wonder, the text is not a rambling lot of mush by a hack writer. Everything Miss Jekyll writes is worth reading, and *beautifully illustrated*. (Witness her books on Roses, Lilies, and Wall and Water Gardens.)

The second place in my heart is occupied by "Garden Colour," apparently by fourteen different authors, but really Mrs. Waterfield's own book. Her colored plates are a trifle impressionistic, but you may always recognize the flowers, and the garden effects she pictures are thrillingly new and beautiful. Her notes, too, are suggestive—nothing pretentious, but full of good, novel ideas.

Another book for your garden-planning friend is "American Gardens," by Guy Lowell, which contains more photographic illustrations of good American gardens than any other book. There are diagrams of many of the gardens, also. The text is not wildly exciting.

New Jersey.

THOMAS McADAM.



San Jose Scale on a Pear.

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Why You Can Grow Mushrooms



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Four years ago the growing of mushrooms was considered the most uncertain thing in horticulture, but now the pure culture method of growing spawn has eliminated the most important of these uncertain factors. Not only does it simplify wonderfully the raising of mushrooms, but it makes it possible for us to have varieties of mushrooms for the first time, just as we have a Ben Davis and a Baldwin apple.

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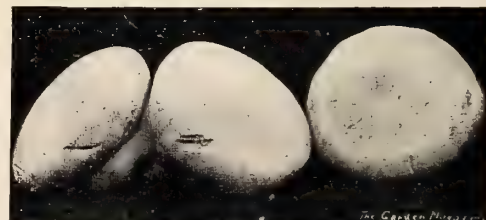
one of the most toothsome dishes, but it gives you the pleasure of gardening during the winter without a greenhouse or even a cold frame! And the expense of spawn is trivial.

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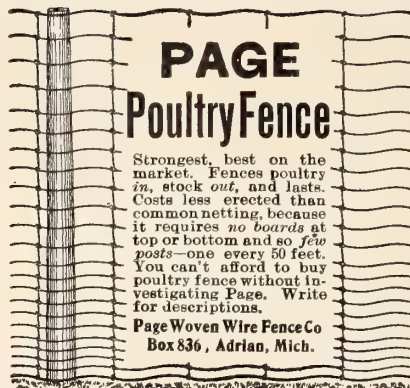
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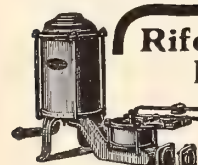
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Notice please, that Mr. Barnum has used *gas* and *electricity* with all the most approved devices for years. He, like thousands of others who use these systems, would probably have pooh-poohed the idea that an oil-burning lamp (or any other system for that matter) could be more satisfactory—*until he tried The Angle Lamp.*

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For where the ordinary lamp with the round wick, generally considered the cheapest of all lighting methods, burns but about five hours on a quart of oil, The Angle Lamp burns a *full sixteen hours* on the same quantity. This, even where oil is cheap, soon amounts to *more* than its *original cost.* But in another way it saves as much—perhaps more.

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There are, you know, really but two kinds of light for home use. One is this splendid, soft kerosene light. The other, the thin, penetrating colorless light, such as comes from the use of a mantle, with gas or gasoline and the acetylene light.

A few years ago this white light was quite the rage. City people had all their gas jets fitted with mantle burners and country people tried gasoline.

But they only used them for a little while. Then they went back to the open tip burner and kerosene lamp. Not because the breaking of mantles caused a great deal of annoyance and expense, although that did have its influence. No, people went back to

these older systems because they found that the *penetrating* mantle light was fast *ruining* their eyes.

Do you know that the most conscientious American manufacturers no longer manufacture what is known as the "pure white" mantle? Simply because they found what all students of illumination have found—that the pure white mantle develops a light so thin and colorless and penetrating that it pierces the retina of the eye, and, like the X-Ray, paralyzes the optic nerve, soon causing blindness.

Yet this pure white mantle, at first heralded as the perfect imitation of sunlight, is merely the highest development of the *kind of light* which some people use because of penetrating qualities that enable them to read a long distance from the fixture. They either forget or fail to appreciate the *destructive effect* of this very quality on the eyes.

Now that fact contains another thought for you about lighting—look out for any light that *imitates the light of the sun too closely!* For such lights are dangerous.

Because when you read or work by sunlight you use only the diffused, softened light, never the *direct rays* of the sun, which so quickly dazzle the eyes. But when you work under artificial light you *must always* use the direct rays of light: for you know that you can't read with someone "standing in your light."

Consequently artificial light must be of softer, warmer

quality than the sun's direct rays.

And that is just why kerosene is the most perfect illuminant: the *direct rays* of the oil light contain just enough of red and yellow to give the softened, diffused *indirect rays* of the sun.

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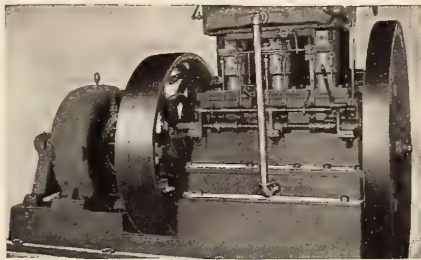
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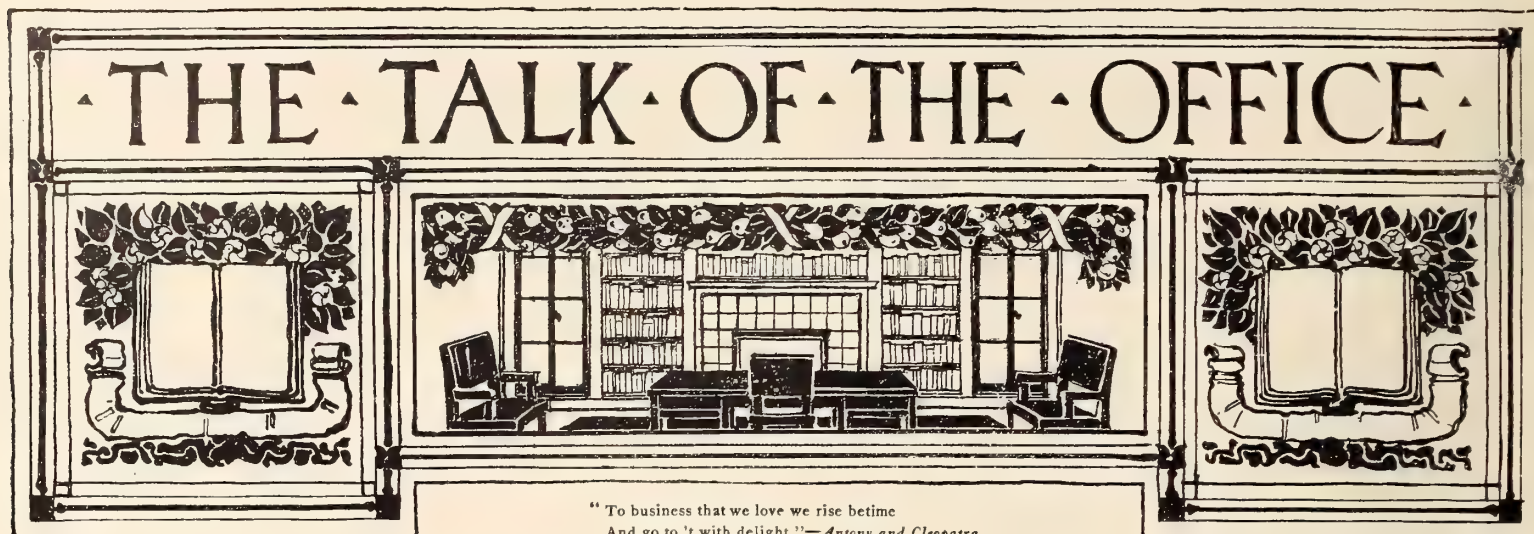
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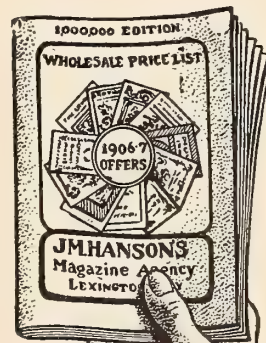
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CONTENTS

JANUARY, 1907

COVER DESIGN—A Window Garden

Mary G. Huntsman

	PAGE		PAGE
THE GARDENER'S REMINDER - - - - -	277	QUALITY EVEN IN THE ONION TRIBE - <i>Effie M. Barron</i>	294
CACTUSES AS HOUSE PLANTS FOR THE BUSY MAN - - - - -		Photographs by A. R. Dugmore, J. W. Scott and others	
<i>Parker T. Barnes</i>	278	AN EASILY MADE PLANT STAND - - - - - <i>M. K. F.</i>	296
Photographs by F. Weinberg and others		Photographs by the author	
RAISING YOUR OWN HOUSE PLANTS FROM SEED <i>F. F. Rockwell</i>	281	WATERING AND POTTING FERNS - - - <i>Eleanor M. Lucas</i>	296
Photographs by H. E. Angell and others		RAISING SUCCULENTS AT HOME - - - <i>Parker T. Barnes</i>	298
EVERY EUONYMUS WORTH GROWING - - - - -		PURCHASER'S GUIDE TO EUONYMUS - - - - -	302
<i>John Dunbar and Wilhelm Miller</i>	285	PEACHES AND PLUMS FOR FORCING - - - <i>I. L. Powell</i>	304
Photographs by N. R. Graves and Henry Troth		THE ONLY WAY TO GROW LARGE MILD ONIONS - - -	
MENDING OLD TREES - - - - - <i>J. Watson</i>	288	<i>George Standen</i>	306
Photographs by Arthur G. Eldredge and others		ANSWERS TO QUERIES - - - - -	310
MAKING THE MOST OF A FERN BALL - - - <i>Luke J. Doogue</i>	290		
GROWING PEACHES IN THE GREENHOUSE - - - <i>I. L. Powell</i>	292		
Photographs by H. E. Angell and others			

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The Garden Magazine

VOL. IV—No. 6
PUBLISHED MONTHLY

JANUARY, 1907

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Watering House Plants

HOW OFTEN shall I water the plants in my window garden?"

There can be no general answer, except "when they need it." Don't over-water; but give sufficient to thoroughly wet the soil at each time, and wait until it has dried out a little before giving more water.

Did you ever see a gardener or florist rap the outside of a flower pot with his knuckles? He does that to ascertain how it "rings." If the soil is wet, the sound is dull and heavy; if dry, the pot resounds with a clear, sharp tone. Therefore, give water whenever the pot rings sharp and clear. Give each pot a rap with the knuckles every day at least, until you have arrived at a knowledge of the capacity of each pot for holding water. Do it regularly when you are giving the window plants the routine attention. Some pots will require wetting only once in two days, perhaps; others twice in one day, depending on the size of the pot, the nature of the soil, the quantity of drainage in the pot, and especially, on the dryness of the atmosphere in the room. Steam heated apartments are usually very trying to plants; furnace heated rooms are generally a little more moist because of the evaporating pan that is in the furnace.

Never resort to a daily light sprinkling. This will keep the surface soil wet—so wet sometimes that moss will grow on it, but the mass of soil in the pot remains dry.

Here is the surest, easiest, and cleanest way to water house plants: Take the plants from the window and put them in a tub, or other convenient place—the kitchen sink is perhaps the handiest of all. Here they may be watered copiously, the surplus draining away; and the foliage may be syringed—that will help to keep the leaves clean, and remove dust, which otherwise will choke up the pores. Or the pots may be put in a tub filled with water to within an inch of the rim of the pot. Let them remain here until the soil in the pot becomes thoroughly soaked.

When this is accomplished the surface soil will show signs of dampness. Now remove the pot, and set it aside somewhere, to drain.

If watering must be done in the window or room, use a saucer under the pot, and give water inside the pot until it is full to the top. Let the water soak in, and any that runs out at the drainage holes in the bottom will be held in the saucer. Do not at once empty this, but let it remain, with the pot standing in it, for an hour. If the soil is loose in the pot, water runs through it quickly, without really watering; leaving it standing thus, you give ample opportunity for the soil to soak up a proper supply of water. But don't let water remain in the saucer indefinitely. It prevents aeration of the roots, which is every bit as necessary as water.

BULBS IN THE HOUSE

If you acted on the advice given in the September Gardener's Reminder, you will be ready with a stock of bulbs in pots for bloom through the first two months of the year, and before there is any opportunity for work to be done outside. Hyacinths, tulips, daffodils that were potted in September, and put under cover in the cellar, can be brought into the light (and heat) about Christmas week, or later, according to the time that flowers are wanted. By bringing in several pots, in succession, at intervals of a week or ten days, flowers can be had from about January 20th until the outdoor spring flowers appear. There is nothing difficult in this. The pots, or boxes merely need digging up from the ashes, and the bulbs will commence to grow at once in a window garden where they are not exposed to frost. On very cold nights, or very wintry days, take them away from the window.

The bulbs cannot help flowering, if you give them a fair chance. The flower was nestling down in it when you bought the bulb, and is only too anxious to push itself into the sunshine. Failures with bulbs are always due to careless or improper treatment.

The most common fault of the window garden is its irregularity of temperature—too warm in the day, and too cold at night—especially the latter.

Good tulips for early forcing are Proserpine, Yellow Prince, Chrysolora, Vermilion Brilliant, La Reine, Rose Grisdelin Cottage Maid.

Do not try to force double tulips until late in February.

GETTING READY FOR EASTER

Next Easter day is March 31st. It is quite possible for the window gardener to force flowers for Easter. The easiest plants to handle for this purpose are the hortensia, (*Hydrangea hortensis*), and the florist's

spirea (*Astilbe Japonica*). Sparaxis, ixia and freesia, among the Cape bulbs, can also be had easily.

Most people fail to grow the spirea because they do not give it sufficient water. It must be kept constantly moist. Buy roots as early as possible in December. They may be potted at once, or stored in a cool place—a little frost will do no harm. Bring into the warmth the latter part of January. Do the same thing with the hydrangea. They both need ten weeks from starting growth until they flower.

ALSO BEFORE JANUARY FIRST

Begin forcing Easter lilies (*Lilium longiflorum*, var. *eximium*)—bulbs brought in from frames and pits as soon as possible can be put in a cool house where not less than 45° is maintained. Give a gradual increase of about 2° or 3° a week until 60° is reached. If by the end of February the buds are not well developed, give a somewhat higher temperature; even 75° will not hurt them. The middle of December is late for forcing lilies, but flowers can be had by Easter, if all conditions are favorable.

AFTER JANUARY FIRST

Put into a cool house (40° to 45° night temperature) pots and pans of ixia, anemone, sparaxis, and other Cape bulbs, which were potted as advised in the September Gardener's Reminder.

SEEDS TO SOW NOW

As early as possible this month sow seeds of pansy, lobelia, verbena, marguerite, carnation, snapdragon, petunia, daisy, forget-me-not, wishbone plant (*Torenia*), impatiens, silk oak, banana, as well as of all the plants mentioned in Mr. Rockwell's article on page 281 of this number. Carefully read that article too, for it is the best description of how to do the work that we know. The perennials and annual bedding plants raised from these early sowings will be in flower by planting-out time in May. Buy a few cactus seeds after reading Mr. Barnes's article on page 278. Cannas can be sown now, or later.

THINK OF NEXT SUMMER'S BEDS

There is no more showy plant for outdoor bedding in a shaded spot than the tuberous begonia—it will grow best at the north side of a house, or partially shaded by trees. If you want large flowering plants by June, sow seeds indoors now. *Begonia semperflorens*, var. *Fairy Queen*, does much better in partially shaded beds than in full sun.

Gloxinias (for indoor cultivation only) can also be started in the greenhouse now.



Cereus marginatus *Epiphyllum Russellianum* *Opuntia purpurascens* *Euphorbia splendens* *Opuntia Brasilensis, grafted*
Echinopsis multiplex *Mesembryanthemum ficioides* *Semperivivum tectorum* *Gasteria linguiformis* *Anhalonium fissuratum*

Representative desert plants of easiest cultivation in the window garden. All will survive as low a temperature as 35 degrees, if kept dry

Cactuses as House Plants for the Busy Man—By Parker T. Barnes, New York

THE PECULIAR MERITS AND FASCINATION OF THESE QUAIN'T AND WEIRD DESERT PLANTS
 AND THEIR REMARKABLE POWERS OF ADAPTATION TO VERY TRYING CONDITIONS

FOR the man or woman who has only a few odd minutes to spare at irregular intervals for plant cultivation the cacti and some of the succulents will give the greatest amount of satisfaction. Unlike most other window plants they do not greatly resent irregularities in watering. They have no tender foliage to get damaged, or to fall if conditions become unduly bad, and they require less attention in the matter of repotting into larger-sized receptacles than any other class of plants. Their slow rate of growth is a positive advantage for the window gardener, as a remarkably large assortment can be kept in the same quarters for a

number of years without becoming unduly crowded.

With very few exceptions indeed cactuses are not grown for their flowers, but when these do appear they are every bit as gorgeous as many of the better known flowering plants, and often indeed, with their intensely glowing ruby and purple shades, they rival even the most showy of the orchids. The flowers are also very large in comparison with the plants, and it is no unusual thing to see a little plant three or four inches high in a pot a trifle smaller, carrying two or three flowers, each one of which is of almost the same size as the parent stock.

Cactuses offer untold opportunities for

"house gardens." Unfortunates who are confined to city apartments, and whose only opportunity to keep growing plants is confined to the living rooms or shelves in the window, can easily accommodate two or three dozen cactuses where there would hardly be space for one good-sized Boston fern or a couple of starved geraniums. The little plants are never in the way, and can be shifted about easily as necessity demands; and though, of course, hard usage is most undesirable, they will survive the hundred and one accidents and strains upon their vitality that would be fatal to any other living thing. Though the cat may jump and knock them down with such persistent regularity that the plants are



One of the dwarf growing echinocactuses. The effect of the white scale-like markings on rich green is very pretty. *Echinocactus ornatus*

tumbled out of their pots every few weeks, they will still remain alive. I do not advocate such maltreatment and neglect; cactuses, like everything else, will give amazing returns for attention that is just a little bit better than the ordinary, and there is a great personal satisfaction in being the possessor of something a little better than your friends.

The only way to get flawless specimens is to grow the plants yourself from seed, and the process is simplicity itself. You can begin at any time of year, with the absolute confidence of producing plants of appreciable size in twelve months, (of such genera as *Cereus* and *Opuntia*). Plants that have been collected in the wild will never present the same even texture of surface and bright green color, nor will they attain equal rapidity of growth or live so long as plants raised in cultivation, because their roots are damaged in the removal.

For the purpose of the window gardener cactuses may be grouped into these general classes: (1) Tall; (2) Dwarf; (3) Vine-like.

In the first class are the Indian figs and some species of the genus *Cereus*, but I would hardly recommend them for the window garden, because they soon get so tall that they are top heavy, and frequently tumbling over.

GOOD TALL PLANTS

Only two of the tall growing kinds need be included in the amateur's window collection. The Indian figs (*Opuntia*) have flat, round or club-shaped stems, but they are usually flat, and the joints either round or oblong in shape. The rather large flowers are borne singly on the upper edges of the young growths, and are showy, the usual color being yellow, but they may also be found in various shades of red. One of the best of this type to grow is *O. microdasys*, with flowers two inches across, and greenish-yellow in color.

A very interesting one, but more difficult to grow, is the dwarf prickly pear (*O. crinita* also known as *O. senilis*). Instead of spines, it has long, silky hairs, and must be grown under a bell glass, if the hairs are to be kept clean. It never attains a height of more than about three feet.

In Mexico the organ cactus (*Cereus marginatus*, also known as *C. gemmatus*)

is used for hedges or fences. It is distinct in appearance from others of its genus. The stem is seldom over three inches in diameter, with five or six very obtuse ridges, each of which has a row of short, black spines, which grow in bunches of seven to nine.

RED FLOWERS ALL WINTER

The commonest cactus in the window garden, because it gives such a wealth of bright flowers, is the crab cactus (*Epiphyllum truncatum*). In its native country it grows as an epiphyte, along with the orchids, but it is grown on its own roots in soil, with us. The best way, however, is to have a plant grafted on *Pereskia*. The stems are flat, resembling the claws of a crab, but they become round and woody with age. During the winter each tip produces a pair of brilliant flowers, ruby red, or varying toward violet red, according to the variety. In Europe there are many named varieties. It is useful in suspended pots, or baskets, the long stems hanging over the edges of the pots. It flowers in the winter. Grow in a soil made of equal parts of fibrous loam, leaf mold, and sand, with some finely broken charcoal or broken brick, for drainage.

Another red flowered plant (but blooming in June) is *Phyllocactus Ackermannii*. Its big flowers (four to six inches in diameter) are like that of the night-blooming cereus, (and it is grown in the same way) but they are scarlet-red outside and carmine-red inside. It has flat stems, and grows only about three feet high.

THE NIGHT-BLOOMING CEREUS TANGLE

The most popular of the vine-like cactuses are several quite distinct plants, but all popularly known as "night-blooming cereus." Two genera are confused under this name—*Cereus* and *Phyllocactus*. They make long, straggly stems, which may be trained up along the window cases or over trellises. The stems of cereus have three to six angles,



The best way of growing cactuses—permanently planted out where they can be kept warm in winter. Provide very free drainage and syringe daily

while the *Phyllocactus* stems are flat, the ends looking like long, fleshy oak leaves. All the cereus and the night-blooming phyllocactuses have large white flowers. They expand just after sundown, and remain open until the sun shines upon them the following morning, when they collapse.

These plants need a richer soil than the ordinary run of cactus. Give them a fibrous compost, and mix some broken charcoal with it, to insure good drainage.

A HANDFUL OF DWARF PLANTS

Regarded purely as window garden plants the dwarf species—growing to about a foot, or less—are the most desirable. They



A hundred different plants can be accommodated in an ordinary window garden. Keep frost from them



One of the native prickly pears (*Opuntia Rafinesquii*, from Colorado). The fruits are edible. Hardy

possess a great variety of queer forms, and some are most viciously spiny.

One of the most peculiarly shaped is the "bishop's cap" (*Echinocactus myriostigma*, also known as *Astrophytum myriostigma*). The outline of this plant is that of a flattened globe, and at the most is only about five inches in diameter. It has five or six very prominent ribs, on the edges of which the pale yellow flowers are borne. The surface of the plant is more or less covered with a white scale-like growth, which reminds one of scale insects. This plant seems particularly prone to rot at the surface of the soil, to avoid this it can be grafted on a cactus.

Of the same general type is the sea-urchin cactus (*Echinopsis*). If it were not for the ridges these plants would look like gourds standing on their small ends. They sometimes reach a diameter of twelve inches, but as grown in the window garden, rarely exceed half that size. The stem has anywhere from a dozen to eighteen sharp ridges, thickly set with small spines along the edges. The flowers are about six inches long, trumpet-shaped, and either red, pink, or white. The two most commonly grown species are *E. multiplex*, with rose-red flowers, but blooms seldom, and *E. Eyriesii*, which has white flowers produced freely.

One of the most curious is the living rock cactus (*Anhalonium Engelmanni*, known in the trade as *A. fissuratum*), sometimes also called "dry whiskey," because a very strong,



The bishop's cap (*Echinocactus myriostigma*) is a genuinely "spineless cactus." Often grafted to prevent rot

intoxicating drink is made by crushing the plant and adding a little water.

Among the very smallest are the mammillarias, seldom growing over six inches high. They get their name because they are covered with tubercles, instead of ridges. These are usually set in rows which twist spirally around the plants. On the end of each tubercle is a cluster of small spines. The flowers are small, and tubular shaped; yellow, red, carmine or purple. In a month or two after the flowers have disappeared a little red fruit appears, and is far prettier than the flower. *Mammillaria bicolor* is a very handsome species, with white spines which lie flat on the stem. In *M. plumosa* and *M. lasiacantha*, the spines are like fine white hairs. When grown under tumblers, to keep the dust from collecting and soiling the hairs, the plants look like bolls of cotton.

The "old man" cactus (*Pilocereus senilis*) is another one of those curious fuzzy cactuses needing protection from dust. The hairs are from two to five inches long. The



The gorgeous crimson flowers of the crab cactus (*Euphyllium truncatum*) appear in the winter time

flowers, which are seldom produced in cultivation, are four inches long, and red. In a pot this plant rarely exceeds a foot in height, although it becomes a veritable tree in its native haunts.

SOME COMPANION PLANTS

Some other desert plants which are not cactuses, but needing practically the same treatment, are usually associated with them naturally. These are generally referred to as "succulents." Among them are the aloes and the century plants (agaves). In the gasterias we have plants with long, flat, strap-shaped leaves, produced in two ranks. They are dark green in color, and covered with small white spots. The flowers are of various shades of red, are one-half inch to one inch long, tubular, and are sparingly borne on a long stem which comes from the middle of the plant.

The long spiny stems of the so-called "crown of thorns" (*Euphorbia splendens*) always excite interest. The plant has pretty, bright red bracts, which are usually mistaken for the flowers, and are borne at almost any season of the year, but usually during the winter months. It is desirable to train the plant to some ornamental form, or it becomes unwieldy.

Among the fig-marigolds are several curious and interesting plants. Some are shrubby, some make long, slender growths



The strong spines of the Echinocactus are part of the beauty of the plant. They are variously hooked and twisted

suitable for hanging baskets, and others are stemless, just a mass of leaves growing on the surface of the ground. The leaves are usually thick and watery. A particularly good species for hanging pots or baskets is *Mesembryanthemum ficoides*. Give these the same treatment as the cactuses and all will go well.

THE OLD-FASHIONED HOUSE LEEK

An extremely satisfactory plant which is easily grown from seed or cuttings is the showy sedum (*Sedum spectabile*). It grows one and a half to two feet high. The leaves are large (2 x 3 in.) and light green in color. The flowers which vary from rose to purple are half an inch across and bear in large, flat, showy bunches. It will flower at almost any season and lasts a long time in bloom. This and the next are admirable plants for growing in city window gardens.

The stonecrop (*Sedum acre*) spreads over the surface of a pot or box by its creeping stems. It has the advantage over the other plants I have mentioned in that it is hardy. I have seen boxes of it on city window sills all winter—the only green thing in sight.

A close relative of the sedums is found in the houseleek (*Sempervivum tectorum*). The glaucous, green leaves are borne in a rosette which is three to four inches across. It is grown for its foliage effect, not for its flowers.



The commonest night-blooming cactus. Really a Phyllocactus but popularly called a Cereus. It has flattened stems. Cereus has angular stems

Raising Your Own House Plants from Seed—By F. F. Rockwell, ^{Connec-}_{ticut}

HOW TO MANIPULATE SEED PANS AND FLATS IN THE WINDOW GARDEN AND GROW A VARIED COLLECTION OF FLOWERING AND FOLIAGE SPECIMENS FOR INDOOR ADORNMENT ALL THE YEAR—THE BEST PLANTS

MANY of the best house plants can be raised from seed, in the ordinary living rooms or where potted plants are kept in a window during winter. It is a question whether you actually save anything by raising your own plants; in all probability you could get them as cheaply and as good, if not better, from the florist, but there is no question about the fun in growing plants from the seed. There is a satisfaction in

save care in watering, room, time, and trouble.

The flats being ready mix the soil. A good seed soil is made from equal parts of fibrous loam from the compost heap, sand and leaf mold, wood's earth, or peat. The sand must be sharp, such as a mason uses for mortar. If sand cannot be had sifted coal ashes will do very well as a substitute. Should these ingredients not be available use a rich, light, fibrous, garden loam.

Over the holes or cracks in the flats put a $\frac{1}{2}$ -inch layer of broken potsherds, coal clinkers, or gravel for drainage. Then run through a sieve having three meshes to the inch, part of the already mixed seed soil. You will then have two lots of soil, one coarse, the other fine. Spread a $\frac{1}{2}$ -inch layer of the coarse material over the drainage material that is already in the flat and on top of that, fill the flat to within half an inch of the top with the fine, screened soil. As you proceed be sure to pack the soil in the corners and along the edges by means of your hands, because if you do not, it will settle, and the waterings will wash down the soil. Firm the whole by means of a brick or board.

Make drills about two inches apart using a piece of narrow board as a marker, merely pressing it lightly into the soil for a quarter inch or so. Sow the seeds thinly and evenly in the drills, and cover lightly; the best way to cover the seeds is to screen the soil on them using a screen which has a mesh about the size of that in mosquito netting. A good rule to follow when covering seeds is to put on a layer of soil which is as deep as the diameter of the seeds. Sand, dry sphagnum, cocoanut fibre, or leaf mold, which have been rubbed through a fine screen, make very good coverings for seeds. They never get hard or bake, making an ideal covering—light, easily pushed through by the tender seed-shoots, and retentive of moisture.

Water the soil thoroughly after sowing. The best way is to set the flat in a large pan partly filled with water, allowing it to soak up from below. This is better than overhead

watering because no matter how fine a spray is used it is liable to wash the soil. Another way is to water through a sheet of blotting paper. Place the blotting paper on top of the seed bed and slowly apply the water, allowing it to soak through the paper. The drip is thus avoided.

Cover the box with a loose-fitting pane of glass to keep a more humid atmosphere thus reducing evaporation from the soil. Every-



Make a "flat" 12 x 15 x 2 1/2 in. Over the drainage holes or cracks put broken potsherds and moss or coarse screenings from the soil, then—



fill to within half an inch of the top with screened soil, pack the corners, and add a layer of fine soil

having things all your own, and the work offers engagement indoors at a time when gardening work is slackest.

HOW TO START THE SEEDS

Where only a few plants are to be started, unglazed pots or seed-pans are often used, but much better success will be obtained by the use of "flats." To make these buy from a grocery store some soap boxes. A convenient size is 12 x 15 inches. Cut them into 2 $\frac{1}{2}$ -inch sections and nail bottoms on these taking care to leave cracks between the boards or make four or five 1-inch holes for drainage. The sides may be painted, if they are to be used in the house. These flats are better than pots both for starting the seed and pricking off, as they



Sow the seeds in drills made by a wooden marker one-quarter inch wide

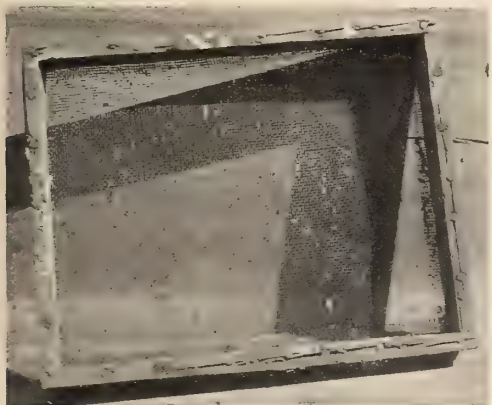
day remove the glass and wipe off any water of condensation which may be on it. Place the flat in a position where it will receive all the light possible, but shade it from the direct sun. If the window has a southern exposure cover the seed flats with paper during the sunny hours.

THE DETAIL OF "PRICKING OUT"

As soon as the seedlings have made their first two real leaves it is time to "prick out" into other flats, prepared similarly to the seed flat.

Pricking out is the first transplanting of the seedlings, and needs to be done tenderly. Do not try to take each single seedling from the seedbed. Take out a portion of soil which has a number of seedlings in it, lay it on its side and gently separate the soil.

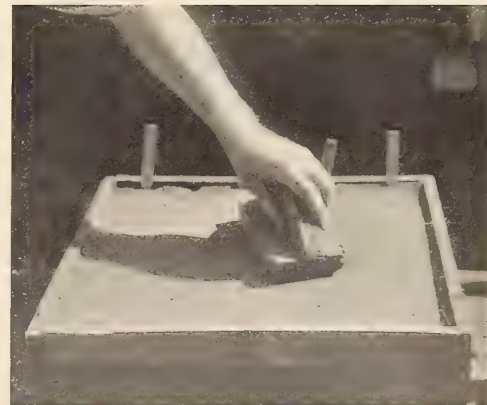
The dibble is a very useful tool for this purpose. It is made from a small piece of wood one-fourth or three-eighths of an inch square and about four inches long.



A home-made screen of mosquito netting is handy for preparing the "fine" top soil



Coarse screenings from the compost, to be used in the bottom of flats and small pots



Cover the seed with a thin layer of fine soil and firm with a smooth board

Make a tapering point—two inches long—on one end; the other should be drawn down to an edge. This latter will be very useful in separating the plants and firming the soil about the seedling when it has been set in the new soil.

Put in rows an inch or two apart, water thoroughly, and shade for several days from hot sun with newspapers. Do not water again until the surface of the soil begins to dry. Do not delay the pricking off, do it just as soon as the little seedlings can be handled for they may all be lost by "damping off" or they may become drawn. Should the seedlings begin to damp off apply some hot sand, sprinkling it on with a fine-meshed sieve.

As soon as the plants need still more room prick them out singly into thumb (2-inch) pots. When transplanting insert the plant-let a little deeper than it was in the old bed.

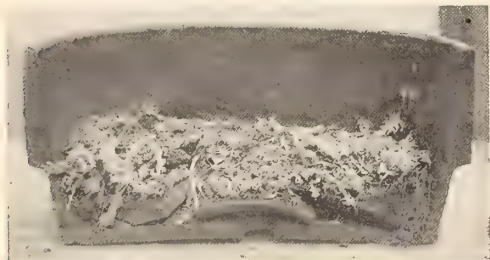
THE FATAL FROST

All the plants named later in this article can be grown in an ordinary window, where ordinary living-room conditions prevail. The temperature should be from 50° to 55° at night, and under no circumstances must the freezing point be reached. The day temperature, if you can control it, may be allowed to rise 10° on dull days and 15° or 20° will do no harm when the sun shines.

During the winter have a care that none of the leaves of the plants touch the glass during the night or when there is frost out-



A poor sort of screening as drainage holes! An ash sieve is used for screening the soil



An 8-inch pan with coarse screenings, and drainage topped with sphagnum moss, to prevent washing



The same pan filled with soil, and ready for the seeds—compare with first two figures on page 281

side because it will at least chill and maybe kill them.

On very cold nights move the boxes or pots away from the window and put newspapers in front of the glass, but leaving a dead air space between.

IS FEEDING NEEDED?

When the roots have well filled the pots, the plants may need a dose of liquid manure—plant fertilizer in solution or soot water. But for the first year this is unnecessary, and in any case should be done only during the spring and summer when growth is active. Cow manure is the safest article for the window gardener to use as there is no danger of getting it too strong and burning the roots. To make use about one bushel of manure to a 50-gallon barrel of water. Soot water is made by putting one-half pint of soft coal soot to ten gallons of water; hard coal soot is useless as a plant food.

RED BERRIES FOR CHRISTMAS

Nothing is easier for the owner of a sunny window than to grow a few plants of the Jerusalem cherry (*Solanum Pseudo-Capsicum*), as the spare room is needed only when the weather gets warm outside. I don't know of a more generally satisfactory Christmas plant either. It is symmetrical, full of bright red berries, and can easily be had with a head a foot in diameter for the holidays from seeds sown during winter or spring. The "cherries" hang on for three months.

Sow the seeds in February, and as the plants fill their pots with roots, shift to a slightly larger pot.

During summer, plunge them in a shady place outdoors, and give plenty of water. By pinching back, and turning, the plants may be kept symmetrical. When taken in the house in the fall, see that they get plenty of air and plenty of water at the roots, and syringe the foliage. Be careful about watering while the fruit is setting and ripening, which will be in November and December. To carry the plants over from one year to the next, cut back the old plants in the spring, and give the same treatment as they had the previous summer.

A PLANT FOR BASKETS

The best decorative plant for shelves, baskets, or hanging baskets is the foliage asparagus (*A. Sprengeri*). Its foliage is much coarser than that of the fine-leaved asparagus (*A. plumosus*), somewhat resembling light, glossy-green pine-needles, stuck endwise upon viney stems. But its branches hang down gracefully on all sides, and make a handsome, symmetrical plant. If kept growing freely all summer the plant will produce an abundance of red berries about Christmas time, making a welcome addition at that season.

VINES THAT FLOWER ALL WINTER

I think no plants are more artistic, more beautiful for room decoration than the climbing vines. The fact that they are so seldom used for this purpose gives them an added distinction. For myself, I prefer the

ivies, on account of their simple strength and grace; and they are best got at the florist's. But several good house vines are best raised from seed. The cup-and-saucer-flower (*Cobæa scandens*), and *Thunbergia alata*, with its varieties, are the best two flowering vines for the house. The former has purple, bell-shaped flowers, two inches across, the latter having, according to the variety, blooms of golden yellow, rich orange, white and blue, or pure white, with white or dark centres, and about one and one-half inches across. Both these plants are perennials, but are often grown as annuals. They are easily raised from seed, are strong, rapid growers, and have very decorative foliage.

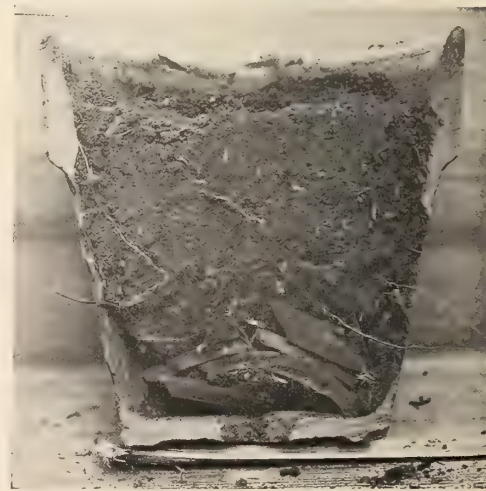
If seeds are sown early in the year—January or February—the plants can be used outdoors during the summer, and in September may be cut back, dug up, and potted for the window garden. By making successive sowings once a month until the end of May, the *Thunbergia* may be had in bloom all winter. The *Cobæa* seeds must always be set edgewise in the ground.

VINES GROWN FOR FOLIAGE

The smilax of the florists (*Asparagus medeoloides*, also known as *Myrsiphyllum asparagoides*) is also one of the best vines



A pot needs more drainage than a flat or pan, because it is deeper and holds more soil

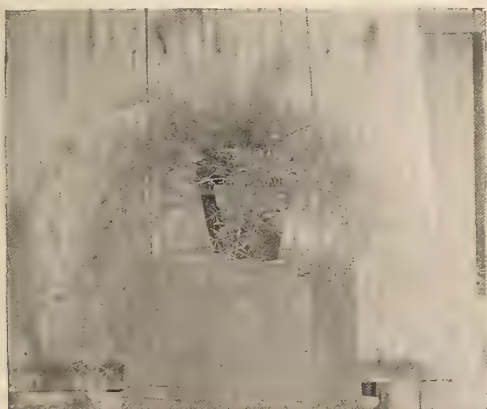


Two inches of coarse drainage is not too much to provide for an 8-inch pot



Cherry pie, or heliotrope, is the best all-purpose plant for the window gardener. From seed sown in January flowers will be had in July, and from later sowing the fragrant blooms can be had all winter. Never permit heliotrope to become dry at the roots

for the amateur's window garden. Planted in boxes, it can be trained to the window cases. The shaded places in the window garden are admirably adapted to its necessities, so it can be used where other green plants refuse to grow. The plant will make a growth ten feet long, and must have a string to climb upon. The foliage is a dark, glossy green, and there are single white flowers in winter, which are very fragrant. The seeds must be sown in January or February, and when the young plants are two or three inches high, and are making their characteristic leaves, transplant them singly to 2-inch pots. In May they will need shifting to 3-inch pots.



The best basket plant for the house (*Asparagus Sprengeri*). Easily raised from seed sown as soon as ripe. Has bright red berries at Christmas

July is the time when the florists plant them out in beds in the greenhouse, but in the window garden, where a bed is not possible, I use a long, narrow box, six inches wide, as much deep, and two feet long. In this there are planted five plants. This is a little closer than the florists plant them, but as I have only a single row, it gives them plenty of room for development. The soil should be very rich—a fibrous loam, to which is added half-rotted cow manure and sand, one part each to three parts of loam. The strings must be arranged just as soon as the seedlings are planted. The best material for this, because of its strength and color, is the green smilax string used by the florists, from whom it can be bought. Should you desire to use the smilax for festooning elsewhere about the house, the strings with the twining vine may be cut, and the roots will immediately start a new growth of stem. Make a new sowing of seed each year, as it does not pay to hold the plants over from one year to another. This will succeed where the night temperature is from 50° to 65°.

ASPARAGUS THIRTY FEET HIGH

The most popular of the so-called asparagus ferns, (*A. plumosus*, var. *nanus*) may be trained in vine form too. I have seen this dwarf growing to the height of thirty or forty feet, with great stems like tangled creepers in a jungle. This is the best variety, because it can be used for short sprays, as a decora-

tive pot plant, or as a vine. There is no foliage more beautiful than the delicate, light-green, feathery sprays of this asparagus, and yet, in spite of its fairy-lace appearance, when cut it keeps both its color and freshness for a very long time.

This plant is a slow grower, and it is important to have fresh seed. Sow in a good, light seed soil—i. e. one having plenty of leaf mold and sand in it. When the young plants begin to make good root growth, transplant to 3- or 4-inch pots. This size pot will be sufficiently large for the plants all next winter. If the growth is too long



Asparagus plumosus, the best fine-foliage plant. Takes two years to attain this size from seed



Mignonette. This yellowish-green flower is unattractive, but most fragrant. Better spikes are grown in the window garden than outdoors

and straggly, pinch back, as is necessary. In the summer time you must decide how you wish to grow the plants—as dwarfs, or as vines.

To grow a handsome pot plant which can be used for decoration anywhere in the house, shift the young plants to a 5- or 6-inch pot, and use a good, rich, but well-drained soil. When the new growths are a foot or so long pinch out the end. This will keep the plant dwarf and shapely.

To grow as a vine, plant in boxes just like smilax, and be very particular that the soil and boxes are well drained.

The seeds of this asparagus are expensive, because it does not fruit freely.

IN FLOWER ALL THE YEAR

Of course you will want flowers, as well as green foliage. Perhaps the very best all-purpose flowering plant is *Primula obconica*, var. *grandiflora*, which is not tender, and blooms the whole twelve months. It is the most graceful of all primroses. Its large, single flowers are borne in clusters on the tops of stems which are four to ten inches high, and their pale white cheeks just tinged with blue or blushed with rose. In well-grown specimens the individual flowers are often an inch and a half across. The leaves are almost round, sometimes four inches in diameter, borne on long stems, and forming a rosette supporting the flower stalks. The hairs on the leaves are irritating or poisonous to some people, which accounts to some extent for the plant not being more popular. Certainly it will grow in a more varied range of temperature, and flower longer than any other house plant.

Sow the seed any time from January to March. It may be sown later, but unless you have a coldframe in which to shade the seedlings, the young plants will be more difficult to manage. By May the seedlings should be ready for thumb-pots. A few days

after potting, give abundance of air—though keep shaded—and never allow them to get dry. Syringe on bright mornings, and after the middle of September keep at a temperature of about 50° at night. In potting and repotting—they will require several shifts—take care not to press in too firmly about the roots, and not to cover the crowns of the plants.

FLOWERS FOR FRAGRANCE

The one plant which will give the greatest amount of satisfaction on more distinct counts than any other in the window is the cherry pie (*Heliotropium Peruvianum*). The beautiful purple color of the flowers combined with the sweet spicy perfume (whence its English name) and the long period of bloom combine to make this an ideal window garden plant.

Originally the heliotrope flowers were



For flowers all the year round grow *Primula obconica*. The foliage is poisonous to some people

violet colored and borne in trusses about two inches across, but now, after much improvement by breeding, they are also to be found in several shades of purple and even white, and the individual trusses six inches across.

Grown in pots or boxes a plant will ultimately cover a space about eighteen inches square, and attain a height of a foot or fifteen inches.

If you want to do something a little unusual grow a few of the plants to a tree form by the method described in the April GARDEN MAGAZINE, page 142. When handled this way four crops of flowers can be had from one plant from May to October. Such plants are extremely useful for hall and porch decoration.

Sow the seeds at any time from February to May and grow the plants in pots all summer, as the heliotrope objects to removal or any interference with its roots.

If the plants are kept in the dwelling house during the summer, give as cool and moist an atmosphere as possible, for though they like sunlight, too much dry heat will scorch both leaves and flowers. Pinch back the plants wanted for winter flowers so as to give

them a stocky form and to prevent them from making flowers in the summer. If possible plunge them outside in the flower border, turning them once in a while to prevent their rooting through the hole in the bottom of the pot. Take into the house upon the approach of cold weather. Plunging means planting pot and all in the soil, up to the rim. This keeps the roots cool.

Measured by fragrance alone I believe that the mignonette (*Reseda odorata*) is by far the best window plant for home raising. The pyramidal flower heads are unattractive in color but they exhale a most delicious odor—there is nothing else just like it.

Mignonette is very hard to transplant; indeed it is impossible to do it without giving the plants a check, and the secret of growing good mignonette lies in growing it on without a check at any stage of its growth. For winter bloom sow the seeds in July, August, or September. July-sown seed will bloom in November. Instead of sowing in flats sow directly in pots.

Prepare as described for flats as many 2-inch pots as you wish plants to grow. Make a slight depression in the soil in the centre of each and drop into it two or three seeds, covering lightly with soil. When the seed has germinated (about two weeks) thin to one plant to a pot, retaining the strongest. When the pot has become filled with roots shift to 4-inch pots and as soon as these are full of roots shift to 8-inch pots. When giving this last shift put a 2-inch layer of drainage. Be very careful not to over-water or the soil will sour, but on the other hand mignonette must never get dry—that would cause a check. For the same reason never allow the plants to become pot bound.



The old-fashioned snapdragon (*Antirrhinum majus*) has gorgeous flowers of yellow, white, or crimson. Sow seeds now, plant outdoors for flower all summer; lift and cut back for winter bloom



The true *Euonymus Sieboldianus*, known to nurserymen as *E. Yeddoensis*. Pink capsules, orange berries and grayish-brown seeds which are not always covered



The berries of this species remain attractive a long while. *E. Bungeanus*. Fruit pinkish. Seeds whitish or pinkish

Every Euonymus Worth Growing—By John Dunbar and Wilhelm Miller

THE APTLY NAMED "BURNING BUSHES," WHOSE EXTRAORDINARY TWO-COLORED BERRIES GIVE LIFE AND BEAUTY IN THE DEAD OF WINTER—ALSO AN EVERGREEN VINE THAT IS HARDIER THAN ENGLISH IVY

[NOTE—This is the fourteenth of a series of "Little Monographs" which constitute a protest against the universal habit of describing one species after another in alphabetical order, using high-sounding botanical phrases and never telling what good a plant is. In this series the aim is to give vivid pen portraits of plant personalities, and the "key" or purchaser's guide shows at a glance the comparative merits of each species, instead of prating about oblanceolate leaves and hairs on the stamens. Who would like to study in this spirit irises, day lilies, species of peony, perennial lupines, asters, sedums? We can furnish the photographs and botany, if you will grow the plants and take notes.]

ANYONE who wishes to make his home grounds more cheerful and attractive in the dead of winter should have a collection of "burning bushes." Because of the astonishing brilliancy of their berries and their peculiar two-colored effect, one does not care for great masses of them. But nothing could be more entertaining than to have one of each kind. There are thirteen species worth having, and the entire collection would only cost about ten dollars. It ought to furnish about \$100 worth of solid satisfaction during the dark and trying days of winter.

These burning bushes have the same sort of berry as the bitter-sweet. The husk or capsule of the bitter sweet is orange-colored and the berry inside is scarlet. The berries shrivel considerably in a warm room, but remain brilliant all winter. The fruit of euonymus is still more extraordinary because the capsule is always a different and contrasting color from the berry, which is generally orange colored. The capsule is either scarlet, pink, purple, yellowish, or white. Vivid as they are, the fruits are more or less hidden by their own foliage or overpowered by the splendor of the autumn colors of the landscape, but after the leaves have fallen

the berries of Euonymus stand out with startling vividness. And whereas most berryed shrubs lose their attractiveness before the holidays, the burning bushes still "burn" in January and some of them even later. For this reason we might adopt the name "burning bushes" for the whole group, since we sadly need an English equivalent for euonymus.

The pendant, long-stalked, berries of Euonymus are the ear-rings of the vegetable kingdom, and, to tell the truth, some of them might be considered "loud" if used too freely, especially those whose pink capsules border on the magenta. But outdoors, in winter, we are thankful for every bit of color we can get.

What we have called "berry" is botanically an "aril," i.e. a fleshy outgrowth from the seed near the scar or hilum. In many species of Euonymus, the aril is so large that it covers the seed entirely. In others the seed is conspicuous and adds a third color to the fruit. The seeds are usually white, sometimes black or scarlet.

All the species are shrubs, but five of them also take on the form of a small tree.

The flowers of Euonymus are inconspic-

uous, greenish, whitish, or purplish, and attract no attention.

I. The Six Tall Species

The six species first described grow fifteen feet high, or more, some of them attaining an extreme height of thirty feet.



The warty branched euonymus (*E. verrucosus*). Capsules yellowish red; berry orange; seeds black



The winged euonymus (*E. alatus*), showing the remarkable corky wings on the branches

The paragraphs are numbered to correspond with the Purchaser's Guide on page 302.

TWO WITH BRILLIANT AUTUMN FOLIAGE

1. The common burning bush (*E. atropurpureus*) is one of five plants that are called "Waahoo." Although "Waahoo" is an Indian word, it is just the sort of shout that a lusty young American might emit at the first sight of this glowing coal amid the snowy landscape. The name *atropurpureus* refers to the dark purple color of the flowers which distinguish it from all other species here described. The capsules are whitish pink, berries orange-red, seeds white. The autumn foliage is bronzy red. This species grows wild as far north as western New York. It blooms in June.

2. Hamilton's euonymus (*E. Hamiltonianus*)

is, according to Rehder, one of those species in which the seed is not wholly covered by the berry, thus adding a third color to the fruit. In this case the seeds are grayish-brown. In our plants, however, the seeds are pale gray, and they are not exposed at all. The Himalayan form is not so desirable as the Manchurian, being tender and having yellowish capsules, while the Manchurian is hardy and has pink capsules. It has yellowish flowers with purple anthers in June. Southerners will be glad to know of its important variety *semipersistens*, which holds its bright green foliage until mid-winter and has bright pink fruits that ripen very late. This is the plant known to the trade as *E. Sieboldianus*.

FOUR WITHOUT BRILLIANT AUTUMN LEAVES

3. The broad-leaved euonymus (*E. latifolius*) has perhaps the largest fruits of all, about an inch wide and one-quarter inch long. It has magenta capsules and is a native of Southern Europe and Western Asia. It is perfectly hardy. Flowers in June, seeds white.

4. The spindle tree (*E. Europæus*) is so-called because its wood is used to make spindles. This is the favorite tall species and it has the most varieties. The capsule is normally red, but there are varieties with scarlet, whitish and deep purple capsules and many shades of light red. This is the species that is used as a tall, ornamental hedge, but it is easy to shear off all the fruiting branches, since these are of the current year's growth. It has yellowish flowers in May. The autumn color of the foliage is dull green and characterless.

5. The true *E. Sieboldianus* is the one that the nurserymen call *E. Yeddoensis*. It can be easily distinguished from Hamilton's euonymus by its larger and much broader leaves. It resembles Hamilton's species in having pink capsules but the seed is scarlet and the autumn foliage is not particularly brilliant. The fruits of this species remain attractive about six weeks.



The climbing euonymus at Pittsburg, where the English ivy is not hardy on walls

6. Bunge's euonymus (*E. Bungeanus*) is said by Mr. J. Woodward Manning to retain its berries at Boston until March. This would distinguish it from all other species, but at Rochester the berries last only six weeks or so. It resembles the Far Eastern species described above (*Hamiltonianus* and *Sieboldianus*) in having yellowish or whitish flowers, with purple anthers, which appear in June. It differs in having white seeds. The capsules are pale pink. There are two forms in cultivation. One has graceful drooping branches; the other is decidedly upright.

II. Four Species 6 to 8 Feet High

7. The autumn foliage of the winged euonymus (*E. alatus*) is probably the most brilliant red of all. This is the only species that has the remarkable winged growth on the branches as pictured on this page. These winged branches are so conspicuous in winter that the species is worth growing for this feature alone. It is a Far Eastern species with small, pale green capsules and (unlike all the species here described) the fruit is, according to Rehder, divided almost to the base into four nearly separate pods. In our experience, however, there are usually two pods and often one. It is a spreading shrub, with yellowish flowers borne in May or June.

8. The strawberry bush (*E. Americanus*) gets its name from the odor of its flowers which are yellowish or reddish green. It has pink capsules, and grows wild from southern New York to Texas. This species and the running strawberry bush (*E. obovatus*) may be distinguished from all others here described by the minute warts on the capsules and by having the floral parts in fives. The others have smooth capsules and the floral parts are generally in fours.

9. The warty branched euonymus (*E. verrucosus*) is easily told from all others by the peculiarity pictured on page 285. Its branches are not as pretty as those of the winged euonymus, but the fruits have a yellowish red capsule and black seeds



The climbing euonymus (*E. radicans*) is probably the hardest evergreen vine. It trails, or climbs twenty feet high. Only a little harder than English ivy

which are not wholly covered by the orange aril. Flowers brownish. Southeastern Europe and Western Asia. Hardy at Rochester but never fruits there.

III. Two Dwarf Species

10. The running strawberry bush (*E. obovatus*) is perhaps the best ground cover in the genus, especially in open shrubberies. It also makes an excellent border for shrubberies. The stem lies down and takes root, but the branches are erect and grow about a foot high. It is probably hardier than the common strawberry bush since it grows wild from Kentucky to Canada. It has purplish flowers in May.

11. The dwarf euonymus (*E. nanus*), according to Rehder, forms a graceful small tree with pendulous branches, when grafted high on the spindle tree, but we have never seen this form. Normally it grows only two feet high and the branches arch over so much that they often take root. This form is desirable for rocky places. The capsule is pink and the brown seeds are not wholly covered by the orange aril. It is a Chinese species, and has purplish flowers in May or June.

IV. The Two Evergreen Species

There are two species that are valued more for their evergreen foliage than for their fruits. One is a beautiful Southern shrub and the other is a moderately hardy vine.

12. The Japanese evergreen euonymus (*E. Japonicus*) is a shrub attaining eight feet that has pink capsules and a number of varieties with rather gaudily variegated leaves. Of the green varieties there are large and small-leaved forms and one with columnar habit. It is not hardy north of Richmond, Va.

12. The climbing euonymus (*E. radicans*) is probably the hardiest evergreen wall-cover. It is the best substitute for English ivy in a climate that is naturally hostile to broad-leaved evergreens, as is the whole country east and north of St. Louis and Washington, D. C. Unfortunately it is not enough hardier than the English ivy to warrant one in spending a small fortune on it. Nevertheless, an evergreen vine is so extremely desirable, even if we can have only a suggestion of its dark, rich color, that every one who has a brick or stone house ought to try it. It will grow fifteen or twenty feet high.

Moreover, it is a capital trailer, being frequently used as a ground cover in partial shade, where it is, of course, hardier. It has this drawback, however, as a carpeting plant, especially in a formal garden: its vinous blood goes to its head occasionally, and it humps up at intervals in a rather unsightly fashion.

The climbing euonymus is considered by botanists merely as a northern variety of (*E. Japonicus*), but horticulturally we must consider it a distinct species. It is probable that Northern grown vines of the climbing nearly separate pods (R); often one pod, (D). Fruit divided almost to base into four

euonymus may prove hardier than Southern grown.

Mr. Dunbar's observations differ somewhat in a few particulars from those reported by Mr. Rehder in the "Cyclopedia of American Horticulture" and a note of these points is here made:

The different observers are indicated as follows: R = Rehder, D = Dunbar.

E. alatus. Capsule purplish (R); pale green usually divided into two (D).

E. atropurpureus. Capsules scarlet (R); pink (D). Autumn foliage yellow (R); bronzy red (D).

E. Bungeanus. Capsule yellowish (R); pale pink (D).

E. Europæus. Capsule pink (R); dark red (D). Autumn foliage splendid (R); green and characterless (D).

E. Hamiltonianus. Seeds not wholly covered by aril (R); not exposed (D). Seeds grayish brown (R); pale gray (D).



The spindle tree (*E. Europæus*). Pink husks and orange berries. Favorite species



Hamilton's euonymus (*E. Hamiltonianus*). Capsules pink; seeds dull colored. Manchuria



Siebold's euonymus (*E. Sieboldianus*). Capsules pink; berries orange; seeds scarlet. Japan

Mending Old Trees—By J. Watson, New Jersey

THE SIMPLE ART OF PUTTING NEW VIGOR INTO OLD SPECIMENS THAT CANNOT BE REPLACED—
MAKING REPAIRS AFTER INJURY FROM STORMS AND DISEASE, AND BRIDGE GRAFTING FOR NEW BARK

THE art of maintaining vigor in a tree that has attained its full development differs essentially from that which concerns itself with the shaping of the young one. In young trees pruning is done with the special purpose of developing a well-formed head to the tree; but in after years, the whole object of pruning is to maintain health and prevent as far as possible the attacks of disease, at the same time overcoming the results of injury and accident.

Most of the "accidents" that happen to old trees are the results of improper treatment or negligence during their youth.

REMOVING LARGE LIMBS

Most fertile of all causes is the careless removal of limbs that have attained a diameter of a few inches. The best way to maintain health and vigor in the old tree is to see that when pruning is done on the young tree no stubs are left to rot and open up a channel for the entrance of fungous diseases or insects.

When removing a large branch, cut as

close as possible to the trunk. The cut should begin from underneath, and after having sawn through about one-third of the way, begin with making a fresh cut on the upper side of the branch, and a few inches farther away from the trunk than where the first or lower cut was started. In dealing with a large or heavy branch, if this double cut is not made there is sure to be an ugly split when the branch is sawn nearly through from the top. It will fall by its own weight, and tear wood and bark from the trunk. The projecting stub must not be left thus. It should be again cut back so as to make an even plane with the trunk of the tree, and the surface smoothed off with a chisel, and immediately coated over with some antiseptic or preservative material. Any common paint is good; Bordeaux mixture may be used; but the best and often handiest preservative is coal tar. It repels insects, prevents the entrance of fungous diseases, is waterproof, and its dark color, hiding the white, newly cut surface of the wood, com-

pletely removes all appearance of the work that has been done.

HOLES AND HOLLOW TRUNKS

An unshortened stub, or one that has not been antiseptically treated, although properly shortened, will, unless the diameter of the cut is not more than two or three inches, inevitably rot, and form an ugly hole. Most trees that are split by the wind exhibit hollowness from some such source. If you have a tree with a cavity of this nature in its trunk, it can be saved for a great many years yet by thoroughly scraping out all the decaying surface matter, cutting away until live tissue is reached, then either painting or burning out the inside, and plugging up the hole by a piece of wood, or filling in with cement.

Old trees will very often have an A-shaped cavity at the base. The rot in this case works very slowly, as the disease does not travel upward so easily as it will work downward, and often indeed a tree will endure until its existence is ended, as a result of some other trouble. It is merely a question of time, however, when the heart wood will be entirely eaten up by the decay, and nothing but the shell of living bark stands to carry an over-heavy top. An unusually heavy windstorm finds such a tree an easy victim, especially if the branches are in full leafage. There is no need to despair, however, even though a tree be thus ancient and hollow. An entirely artificial heart can be put in. After having assured yourself that the interior has been thoroughly cleaned out, fill it up solid with cement, concrete, or even bricks and mortar. Build it up tight and well, and you will have a specimen that will defy the strongest storm that ever blew.

THE BROKEN CROTCH

An evenly divided head—that is, where there are two leaders to a tree—is an ever-present source of danger. It will split. Sometimes, as a result of a hollow formed in the angle, rot will start and gradually hollow out the trunk. Two things must then be done. First, the thorough cleansing and filling of the hole, and second, the bolting or bracing of the divergent limbs. Don't make the brace too near the crotch. It will be much more effective if it is several feet away from the crotch. The method of bracing is very important, and usually it is very badly done. The easiest way to brace the two limbs is to fasten a chain or cable around one, and extend it to the other, fastening it around that also. Mechanically, the desired result is attained. But something more than mechanics must be considered—the very habit of growth of the tree makes this method of bracing a sure forerunner of speedy death. As growth proceeds, and the limbs attain greater size, the inelastic chain or cable will cut into the



This old apple tree has been given a new lease of life. The rotted knot holes were scraped out to live wood, painted, and filled with cement



This crotched oak split almost to the ground. The limbs are braced together, and the split live bark treated with tree wax, to make a new union. The wood inside will never unite



First steps to a bad hole. A stub was left when the branch was taken off, and the end left unpainted. Compare with the lower right hand picture on this page



Right and wrong way of bracing. The lower brace passing around each limb cuts into the bark, and girdles them. The upper rod passes through the limb



Cement used for filling a split trunk must not extend over the live edge of the bark. If it does, the growth of the bark will generally push out the filling, leaving room for disease to enter. The ideal is to have the cement surface just low enough for the bark to grow over it



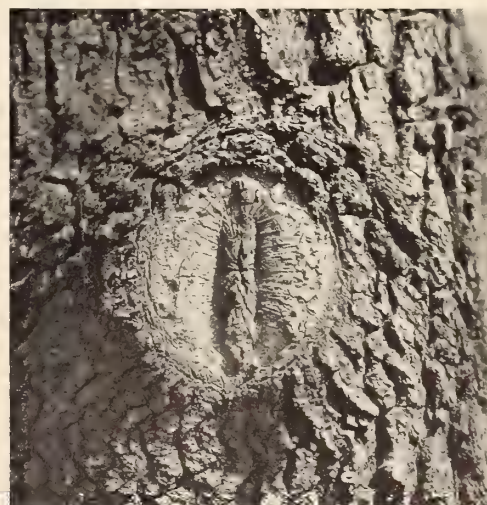
A successful case of cementing. Compare this with that shown in the illustration above, where too much material was used



Covering a big wound with new bark. Instead of waiting years for the bark to close over; strips are cleft grafted



Bridge grafting a large wound after removing a branch. Young growing twigs with wedge-shaped ends are inserted in spring, and waxed, as in ordinary grafting. They will eventually unite



A perfect heal. The branch was cut off close, no stub left, the end smoothed and painted, and the bark quickly closed over it



A common sight in neglected orchards. This old apple tree is capable of bearing big crops of fruit, but it needs mending first

Remove the root suckers and all the water sprouts. Clean out all wood that cannot develop freely, and encourage short, strong growth

bark and effectually "girdle" it. Inasmuch as the actual feeding of the tree takes place through the downward flow in the outer layers of the trunk (the bark), the effect of girdling or severing the bark in a complete circle is merely starvation to the lower part of the tree. Above the girdle the branch will appreciably increase in size, below it remains as it was. Fortunately, there is little likelihood of the girdle becoming absolute, as the bark will grow over and around the cause of the constriction in most cases. But sometimes it is effective, and the roots of the tree die in the course of a few years. These girdled limbs are easily broken by high winds or storms.

HOW TO FASTEN

Bolt the crotch. Do not support it by bands or chains. And there are right and wrong ways of bolting. The best way in fully grown trees is to bore a hole with an auger through both limbs, directly opposite each other, and pass through them an iron rod which fits snugly. This rod should be

secured by a nut on each end, and sometimes a plate is used below the nut, to give greater security. If the nut alone is used on a still rapidly growing tree, the bark will gradually close over it, and the ends of the rod will be lost to sight. This makes a neat appearance, and is in every way satisfactory. On old trees, or on mature limbs, where any appreciable increase of girth cannot reasonably be expected, it will be better to countersink the head of the rod at each end, finishing off with a dressing of paint, filling the cavity with cement, and finishing off the surface to harmonize with the bark of the tree. One of the illustrations at the bottom of page 289, shows the right and wrong methods of bolting. Another satisfactory method, where the decaying crotch has been filled in with cement, is shown at the top of the same page. This latter treatment can be applied when it is desired to retain a branch that has been broken down, but which is not entirely severed from the trunk. As a rule, however, a better result in years to come will be had from the immediate removal of the

broken branch and encouragement of fresh growth. It will develop very rapidly.

COLD SPLITS IN YOUNG TREES

As a result of excessively cold weather, young fruit trees will often split perpendicularly along the trunk. The bark must be induced to grow again by cutting back into the clean growing tissue, and treating the surface of the wound that is exposed to the air just the same as is done for surfaces exposed by cutting or pruning. If this is attended to in the early spring, the wound should heal completely in a year, and the tree will live to a healthy old age, quite independently of this accident. If neglected, however, a wound of this nature is likely to become troublesome in so short a time that the owner of the tree will never need to concern himself with the art of mending old ones.

The treatment above described should also be given to any large trees that have been struck by lightning.

BRIDGE GRAFTING

Professional horticulturists often resort to what is known as bridge grafting to secure a quick, new growth of bark over a large-sized wound. If a branch having a diameter of nearly a foot is removed, it will take several years before the new growth of the bark will completely cover it. The result can be hastened by taking cions and sharpening each end, as for cleft grafting, and inserting them under the bark, where they will make a union. Grafting wax should be applied at the point of union, in order to keep out water. These cions will quickly cover the exposed surface, making a perfect union. Repairs to old trees are best done any time during the winter because of the absence of foliage. Bridge grafting is best done in the spring time, when growth is most active, and the whole detail of chopping, cleaning, and repairing is perhaps more conveniently and better done in January than at any other time of the year. If it is not done in the very early spring, attend to it in November, before the advent of heavy frosts.



Never uncover the roots of an old established tree when grading—the risk is too great, even if anchorage alone is considered. Build up a retaining wall, like this

Making the Most of a Fern Ball—By L. J. Doogue, Boston, Mass.

WHY THIS JAPANESE IS AN EXCELLENT WINDOW PLANT—EASY RULES FOR KEEPING ONE THRIFTY AND GREEN FOR YEARS—A NOVEL SCHEME FOR A TABLE DECORATION WITH CUT FLOWERS

Photographs by the author

THE fern ball is made of the creeping stems of the hare's-foot fern (*Davallia bullata*), wound tightly around a central core or ball of moss, which must be kept wet at all times if the fronds are to be kept green.

The ferns, besides coming in balls, are made to represent all sorts of conventional forms, and can be used in fantastic decorations, and if given proper care, in the simple manner described, will afford one of the

most easily managed plants for house decoration.

The ball reaches the stores about December of each year, and as generally managed is of no use after its one season of growth. Usually it is taken home, watered sparingly, day by day, as it hangs suspended in the window, and, by the following spring when its feathery fronds begin to drop, it is taken down, and put into the cellar, or left in some out of the way corner, and neglected.

It can be kept in a growing condition for years, with very little care. If it is already in growth when taken home, give it a thorough soaking with water. Do not be content with merely syringing it, but plunge it bodily into a pail of water, and let it remain there for a couple of hours or more. Then, after removing it, hang it up where the superfluous water may drain off before it is taken into the window. From time to time after this, syringe it regularly every day, and frequently give it a similar soaking.

HANDLING THE OLD BALL

If you have an old fern ball which has not been killed by neglect in summer, bury it in the ground or in a coldframe for a month or two before it is brought indoors. It will then start up, and be as handsome as ever. If you have stored it in a musty dry cellar, where it has been baked and dried since spring, don't waste your time on it, for it is simply dead. Buy a new fern

ball this winter, and take care of it properly.

After burying, the plants can be brought into the house, and will start slowly into growth. A greenhouse is the best place, and if you haven't one of your own, you may send the ball to the florist. The starting may be accomplished in a Wardian case, but the fern must be gradually hardened off to the drier air outside.



If you buy a new one punch holes in it with a stick and place in a pail of water for several hours



Bury the old fern ball in a coldframe for eight weeks before taking it indoors for the winter season. Never let it dry out at any time of the year



Suspend the newly started plant in a light, sunny window free from gas. Spray the foliage daily and give a thorough watering frequently



The fern ball can be used as a base for cut flowers in a table centerpiece. The green foliage keeps perfectly fresh

Growing Peaches in the Greenhouse—By I. L. Powell, New York

AN UNUSUAL OPPORTUNITY FOR THE AMATEUR—A PROFESSIONAL GARDENER WITH REPUTATION FOR "FRUIT UNDER GLASS" TELLS HOW TO RAISE PEACHES WEIGHING THREE QUARTERS OF A POUND AND HAVE THEM RIPE BY JUNE 1ST

IT IS perfectly practical for the amateur with only one greenhouse to enjoy the luxury of such luscious peaches and plums as are unknown outdoors, and at a time of the year, too, when outdoor fruits cannot be had. Under glass, peaches and plums may be had easily for four months, beginning in June, by a judicious selection of varieties (a list is given on page 304) and putting the trees into heat at proper intervals. A house 50 x 20 ft., accomodating say sixteen trees, will give a fair supply, while from a house 100 x 20 ft., an abundant supply may be had. The best results will be had when a whole house, or entire section at least, is devoted to them, and the trees planted out permanently, but if you have only one greenhouse, trees in tubs or pots may be successfully handled with other plants, always provided that they require the same temperature.

Trees that have been growing in pots or tubs may be planted at any time of the year. If taken from the pen ground they should be planted in the fall, or early spring. Allow space for a spread of six to ten feet on each side of the tree.

For permanently planted trees, the time that the fruit is desired has an important bearing upon the position of the house—thus, for early forcing, it should face the south; for late fruit, it should face east and west; that is, an even span running north and south.

If the site is not naturally well drained, put in a 1-foot layer of stone, broken bricks, or old mortar rubbish, with tile drains running through, and carried to some lower level. Land that is sloping, and underlaid with sand, gravel, or slate rock, will not require any drainage.

HOME-MADE FORCING TREES

Generally the fruit trees used for greenhouse culture are bought from nurserymen who make a specialty of importing them from Europe, where they are specially grown for greenhouse planting and training. Good trees, however, may be raised in your own garden. Buy from some reliable nurseryman early in the spring, trees of the desired varieties in 3-to 4-foot sizes. Plant them out of doors, where they may be cultivated and watered, and cut back to eighteen or twenty-four inches. They will make strong, firm growth under this treatment,

and may be taken up and put in pots or tubs in the fall before severe weather sets in. These will also make first class trees for planting in borders permanently.

If the trees are in tubs, store for the winter in some reasonably dry building, where the temperature does not fall lower than 10° F. The following year they may be grown out of doors in some place convenient for watering, syringing, etc., and will be ready for forcing the winter or spring following. During this preparatory period they will be benefited by feeding with manure water, and also by a mulch of manure toward the end of the summer. If well cared for they will be in good condition for producing fruit at any

careful not to disturb any roots. As soon as the trees require it give a thorough watering. After the fruit is well set give the borders a dressing of wood ashes, one-half bushel to 100 square feet of surface, stirring them into the soil with a rake, and watering them in when the borders require water. The necessity of watering must be determined by an examination of the soil, digging into the borders to a depth of twelve inches or more.

After the fruit has reached the stoning period, a good watering with liquid manure should be given, or some good chemical fertilizer containing 3 to 4 per cent. of nitrogen, 10 to 12 per cent. of phosphoric acid, and 8 to 10 per cent. of potash may be ap-

plied at the rate of three pounds to 100 square feet of surface and watered in when the borders require watering, which will be quite frequently at that time if the weather is at all hot and dry, as the trees will be growing rapidly, and using considerable water every day, and any neglect to keep them well supplied will prevent the proper development of both trees and fruit.

Trees that are grown in pots or tubs will require more feeding than those grown in borders. As soon as they show signs of growth give an application of bone meal, a good open handful to a tree in a 15-inch tub or box, and larger or smaller ones in proportion. As soon as the fruit is well set and growth is well started, give a watering with some form of weak nitrogenous fertilizer. Nitrate of soda at the rate of one ounce to four gallons of water is good, as is weak cow manure water. This dose may be repeated at

intervals of ten days or two weeks until the fruit has reached the stoning period, when a dressing of wood ashes should be given at the rate of one handful to a 15-inch pot. Liquid manure may be given again in a week's time; and during the future growing season alternate waterings of liquid manure and chemical fertilizer as described for the borders should be given once a week. After the crops have been gathered give a mulching of cow manure.

SOIL FOR BORDER AND TUBS

To prepare the border, remove the present soil to a depth of three to four feet, putting in drainage material. On this place a layer



A twelve ounce fruit of Lady Palmerston peach, the result of growing under glass, and extreme thinning. One of the best late varieties, ripening indoors in September

time. They can be stored as directed for the previous year, and taken into the greenhouse as required.

FEEDING FUTURE CROPS

Trees planted in borders prepared as directed, will require no feeding for the first two years. If the growth has been extremely strong, it will be advisable to feed a little the third year after planting. As soon as the trees begin to show signs of growth remove a thin layer (about one inch) of the surface soil of the border and give a dressing of bone meal, using one pound to two square yards of surface. Then give a coating of good well rotted manure, forking all into the soil, being

of straw, or other coarse material, to prevent the soil from working into the drainage, and then fill with soil. The most suitable is a friable clay or sandy loam. The surface soil from an old pasture is the best for making the border but is not absolutely necessary. If the original soil is of good character, it may be utilized. Return it in layers of about six inches. Upon each layer put a dressing of good manure about one inch thick. Also one pound of coarse bone meal to four square yards of surface and fork this into the soil, continuing layer by layer until the border is from six inches to one foot higher than the surrounding level.

For trees to be grown in pots or tubs the best soil is friable loam from the surface of a pasture field to which are added one-fifth of its bulk of some kind of well decomposed animal manure (preferably cow manure) and two pounds of bone meal to each cubic yard of compost. Ample drainage must be provided and the trees taken from the earth carefully without damaging the roots, planted in such size of pot or tub as will accommodate the roots without crowding.

THE ART OF TRAINING AND PRUNING

Some method of training must be adopted, so as to economize the space. The most practical method is the simple fan training. That means that the branches are disposed in the form of an open fan. The best arrangement of the trellises for training the trees, is to have them extend latterly across the house. Stretch wires from six to eight inches apart, beginning about eighteen inches above the soil and as the young shoots extend in growth during the season, tie them into position, bearing in mind that as the tendency of growth is constantly upward, the shoots must be tied downward, otherwise the lower parts of the trellis will be left vacant.

Pinching out the points of strong growing shoots will induce lateral growths, thus helping to distribute the branches more evenly. The branches should never be tied in so closely as to crowd the leaves together, and toward the end of the season should be left free, allowing the sun and air to do the work of ripening the wood for winter.

During the period of active growth in the first season do not cut out any branches, but



First crop on a two-year old (budded) tree of Victoria nectarine in a 12-inch pot. Photographed in March.

pruning may be done after the leaves have fallen, should there be any crowding of the branches, removing the weaker ones, and cutting back the others to such buds as will make growth where it is most needed for the ensuing season. If the strong branches are then tied down leaving the weaker ones free the growth in all will be more even.

In future training follow the same principles. When the trees begin to bear fruit some of the young growths of some of the branches may be removed, always leaving a growth at the extremity of the branch, and generally one at the base to make a branch for another year.

HOW TO FORCE

Forcing must begin very gently. For early fruit (June) heat should be given as soon as possible after the leaves have fallen and the trees have been subjected to some frost, usually in December or January. A temperature of 45 degrees at night with a rise of 10 or 15 degrees during bright

days will be as high as is safe for the first month or six weeks, after which there may be a rise to 45 or 50 degrees at night, and 60 to 70 degrees on bright days with sun heat. During all this time the trees should be sprayed freely with water from the hose until the flowers begin to open. After this the house must be kept reasonably dry and the flowers must be gone over every day with a soft camel's-hair brush to pollinate the pistils. Abundant ventilation must be provided at all times, and particularly when the trees are in flower. After the fruit is set the trees may again be sprayed or syringed with water from the hose, to prevent red spider and other insects from getting a foothold. Aphides or plant lice will probably put in an appearance, when fumigating with some form of tobacco becomes necessary.

As soon as the fruit has passed through what is termed the "stoning period" (or when it is about half grown and begins to enlarge rapidly) the temperature may be raised to 55 degrees at night and 60 to 70 degrees during cloudy weather or 75 to 80 degrees with bright sunshine, keeping the ventilators open as much as possible. Abundance of bright sunshine and a free circulation of air are the principal factors in putting flavor into the fruit.

HOW MUCH FRUIT ON A TREE

I have seen peach trees with fruits that would average thirteen ounces each, but that result comes only from thinning. Everybody agrees that a few large handsome fruits are worth more than four times as many small, inferior specimens, yet the tendency with almost everyone is to allow more fruit than the tree can mature. Begin thinning as soon as the fruits are the size of peas. At that time they appear so small that to thin as much as should be done makes one feel that there will be no fruit left. Six weeks later you will wonder how you could have been so stupid as to leave so many. If the fruit has set freely, remove two-thirds or even three-fourths.

Twelve fruits of a large growing variety are enough for a tree in a 15-inch tub to perfect; for a large tree in a 24-inch tub, twenty-five to thirty fruits are enough. Trees trained on trellises, and in vigorous condition, can carry one fruit to each square.



These two pictures show the same branch of a peach just before and just after the first thinning in March. Remove at least three-fourths of the set

Quality Even in the Onion Tribe—By Effie M. Barron, ^{New York}

THE FIFTH ARTICLE IN THE SERIES OF QUALITY VEGETABLES FOR THE HOME TABLE, IN WHICH ARE TOLD HOW TO RECOGNIZE THE BEST FLAVORED TYPES, AND THE BEST WAYS OF PREPARING THEM FOR USE

MY IDEAL good onion is one that is either oval or spherical in shape, compact and firm, with small, short neck. It must be of good, clean appearance, with an evenly colored, thin, unbroken skin. The flesh must be mild and crisp, and long keeping.

Thick-necked bulbs do not keep so well as those with thin necks. You cannot always grow thin necks, however, and though the stock of the seed may have something to do with this, still the trouble is not one that can be surely controlled.

Onions grown on a rich and fertile soil, in a climate warm and equable, are sweetest and mildest in flavor—so much so that they can be eaten out of hand, like an apple, raw.

HOW TO GET THE BEST ONIONS

To obtain the best quality in onions, they must be grown with scrupulous care as to fineness and richness of soil. You cannot get any sort of well-shaped bulb in a rough coarse soil.

Onions thrive best in a very rich soil, firmly trodden down, allowing only about three inches loose on the top, to plant them in. As a rule, seed is sown thinly in the open ground, where the plants are to grow, and the plantlets thinned as necessary. If sown in the fall (November) they give an early crop of "bunch" or "spring" onions, and are then especially welcome as salading, being one of the first of the refreshing raw "green stuffs" ready after the heavy winter fare.

Under what is called the "new onion culture," the seeds are started in heat in

the early spring (January and February) and transplanted outdoors, after danger of frost is past, the young plants being gradually hardened off first. They must not suffer any check when transplanting, the secret of success in this system being to keep the seedlings growing right along, otherwise the bulbs will not keep well. In either case weeding must be done systematically and cultivation begun early and kept up all the time. And remember, one of the worst weeds in the onion bed is likely to be—onions! Give them plenty of room.

When the onions are ripe, the tops will give signs by falling and bending prior to



The giant Spanish onion, pale yellow, sometimes four inches in diameter, like most mild-flavored ones, does not keep well. Prizetaker, the American form of this, is the best all-round onion for home use

decay. At that time go over the bed, breaking the top at the neck. This causes the onion to "plump up," becoming firm and compact, and consequently improving its keeping qualities. Toward the end of September the bulbs are dug or pulled up, and left on the ground, exposed to the air, for a day or two if the weather is dry; but do not leave well ripened and well dried bulbs outdoors to get wet, as they will start growing again. If this happens, their keeping qualities are ruined.

The easiest, and perhaps the best, way for the home gardener to follow in growing onions is to use sets which may be bought at the seed stores. These are small onion bulbs, specially grown. Seed is sown later than for the regular crop that is to mature this year—generally about the end of May—and seeding is thick, so as to crowd the young plants, and a sandy, inferior soil is selected. The whole idea is to raise a small, solid bulb that will keep over winter, for replanting in the spring. The small sets are harvested in August, and kept exactly as are the large bulbs. The smaller the set, the better, although for home use the matter of size is not important. Overgrown sets are used as pickling onions. The light-

skinned varieties are preferred for this purpose, the White Globe being a special favorite.

PROBLEMS OF KEEPING

It is no use trying to keep soft, growing onions. They simply will not keep. The red-skinned varieties are the best keeping. The yellow skins rank next; then the whites. After digging and drying for a few days the bulbs are put into a cool, dry, well-ventilated cellar or store room. See that the bulbs are perfectly ripe, and quite dry. An excellent way to keep them is to tie them in "hanks," and hang them up. To tie, use raffia; beginning at one end, tie in a cylinder-shaped bundle, eighteen inches to two feet in length, finish with a loop, and hang up. Thus treated, and suspended from the roof, they are out of the way, leaving shelf room for other things. Never pack in deep bins or piles. Handle them just like other bulbs, allowing plenty of air to play around. Look over the stored bulbs from time to time, and pick out bad ones, so as to prevent the disease from running to the others. Scallions—onions that are all neck and no bulb—are useless for storing.

PREPARATION FOR THE TABLE

The strongest-flavored onions are best used for seasoning and sauces. Use the white onions for white soups and sauces; the red and yellow varieties for brown



Onions that have run to flower are useless for storing. Bend over the tops, so as to break the neck before it has grown too far



Chives, the dwarf member of the family. The green leaves, chopped fine, are used in salads. Will grow well in a sunny window

saucers, and for any dish where color does not count, and for frying.

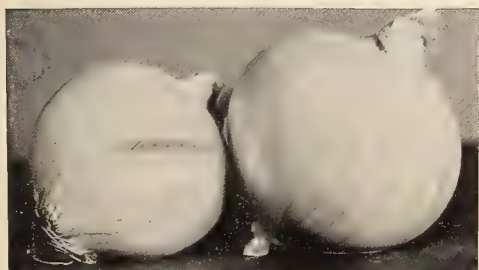
The characteristic quality of the onion—its flavor and odor—is due to a pungent essential oil, and to a certain degree, paradoxical as it may seem, the table quality of an onion is in inverse ratio to the quantity of this oil. Some housewives use onions as little as possible, just because of the discomfort incidental to their preparation. But it is very easily overcome: peel the onion while it is immersed in cold water—hold the hands, knife and onion under the water. True, this is a somewhat awkward proceeding, but it entirely does away with the painful watering of the eyes. This same oil makes onions indigestible to some people, but even that can be overcome by extracting the oil. To modify the strong flavors, parboil or scald the bulb before cooking it. This removes the acrid oil without detracting from the flavor. To parboil, plunge the peeled onion into boiling water, and boil for five minutes. The green oil-laden water is then thrown away. As onions thus treated are softened, they will not fry well—all things must be free from water for satisfactory frying, so if you wish to have “browned” onions, do not parboil, but “scald” instead. Peel and put them into a bowl, pour boiling water over them, cover, and let stand for five minutes. This draws out the oil without softening the tissues.

The onions of the stores are often very strong. Those with a green color running through them are always markedly acrid, and may require two or three waters.

The best way of cooking so as to retain all the flavor and richness of the onion is baking. The Spanish, or any of the large varieties are specially good for this purpose, as they are mild flavored. There is apparently a given quantity of oil to a plant and, so, the larger the bulb, the milder it is.

Always put onions into boiling water to cook. Plain boiled onions served with white sauce can be steamed, not boiled, and will then retain their shape and flavor much better. Always use very mild ones for this purpose.

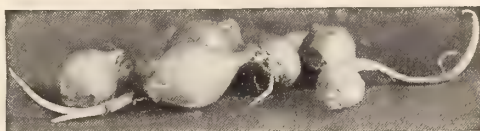
Do not peel them, but put them into boiling water, and boil for about an hour. Drain off the water, wipe the onions dry, wrap each one separately in buttered paper, put in an earthenware baking dish, and bake in a moderately hot oven for from two to three hours, according to the size of



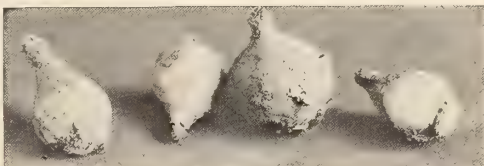
A good model of onion for the housekeeper. The most convenient size is two inches in diameter. Red onions generally keep best



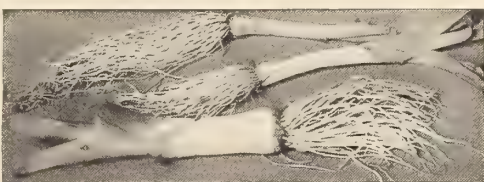
A hank of American garlic ready for storage. Garlic is really palatable only when grown in a hot climate. In cold regions it is overpungent and acrid



Sets, the cheapest and easiest way for the amateur to raise onions. Plant five cents worth in March or April



Imported wild onions from Italy, as sold in the New York stores. Very mild, and lacking in sweetness



Leeks, the mildest and sweetest of all the onion group. No bulb is made, and they do not keep when out of the earth

the onion. When fully cooked they will be a rich brown in color, and full of delicious, not at all pungent, juice.

There is one great universal objection to the use of the onion and all his family—the odor that it leaves on everything with which it comes in contact. It is like King Midas and the touch of gold, and just about as disagreeable:

“You may break, you may shatter the dish if you will,
But the scent of the onion will cling round it still.”

Yet, if after peeling the onions, the hands are rubbed, on either a stick of celery, a slice



Shallots as used for flavoring; are also eaten as salad when young. Keeps well for a full year. The bulb is tinged with violet underneath the skin

of tomato, or a little fresh parsley all sign and smell will disappear.

THE MUDDLE OF VARIETIES

Have you ever tried to unravel the tangle of the host of varieties in this group? I did and in despair have given up the effort. Seemingly all the different types, or so-called varieties run one into another, and vary in form to such a degree that after a few years what was originally introduced as a round onion becomes recognized as a flat one. This is true of the Danvers Yellow (yellow skin) and the Weathersfield, (red skin) both originally spherical. The original (round) Wethersfield is now known as Large Red Globe. There are differences in the keeping qualities of certain types, however, and generally those of southern or warm climates are the poorest keepers, although the sweetest flavored.

THE BEST FOR STORING

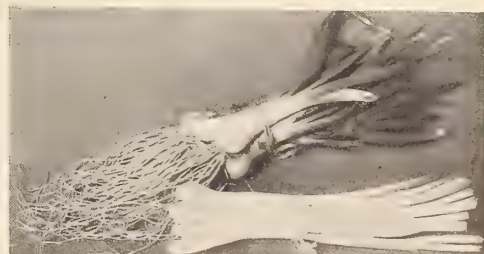
For long keeping, a tough skin is essential. This is found in such varieties as White Round Dutch, the Portugal (in either brown or white skin), and the popular White Globe. The Danvers is of the same type as the Portugal. The Tripoli onions are not such good keepers, but are valued as an early ripening strain, a character that is most marked, however, in the warmer sections of the country.

For delicacy of flavor, the Tripoli, Spanish, Yellow Trebons and Giant Rocca are recommended. The well known Prize-taker, perhaps the most popular of all the domestic onions, is a form of the true Spanish. The Bermuda type is a favorite because it is very sweet, mild, and very early. It is difficult, however to get true seed of this type. One of the delights of onion varieties is that almost without exception any given variety has within it not only the capacity but also the tendency to vary into a host of others. Moreover, as the soil and climate so greatly influence the behavior of the variety, one must experiment, and having found a type and a strain that suits the conditions, stick to that one (in any color that may please the fancy).

“LITTLE BROTHERS” OF THE ONION

Associated with the true onion in our households are these four onion-flavored plants; garlic, shallot, leek, and chives. The use of them is distinctly restricted.

Garlic is too intensely pungent for the majority of people, and is usually used too liberally. A suspicion of its flavor adds



Young “bunch” or “spring” onions used green and eaten raw, as salad. Shallots are also used thus. One way to use the thinnings

pungency to a salad, but all that is necessary is to rub a cut "clove" around the bowl in which the dish is to be served. Good garlic can only be grown in a hot climate, and its cultivation should not be attempted in the North, where the true shallot will thrive much better, and having a similar flavor can be used in its place.

The *shallot* is remarkable in the family for its extremely delicate flavor. The habit of the plant is peculiar, the bulbs splitting into numerous "cloves," which in the young state are excellent in the same way as the "spring onions" already referred to. Indeed, people often confuse the two. The shallot rarely produces seed, and is in that respect much like the potato onion. It differs from garlic in its growth in this respect: the cloves of the shallot are distinct and separate, easily detached, whereas in the garlic the cloves are enclosed in an outer silvery gray skin. The true shallot is also silver gray, but a small yellowish or brown onion is often substituted for it. All these keep easily for twelve months.

MOST DELICIOUS OF ALL

The *leek* is esteemed as a delicately flavored member of the family, but it does not keep at all. For home use in its season (which is late) I prefer it over all others of the tribe. The blanched leaf sheaths are eaten—and there is little or no bulbing at the root. Good leeks have white, thick stalks, fine-grained flesh, and part of the green top leaves as well as the stalks are eaten. They must be planted in very deep soil to make them grow as much white stem as possible, as the more of the firm white stem there is, the better the leek. Rich soil is required, the same as for onions. The seedlings are transplanted about the middle of June, planting deep enough to cover all but the centre leaves. As the plants grow, draw up the soil around them, to blanch them. They may be had eighteen inches long. Though several varieties have been offered from time to time, there are only two types in the American trade. Large Flag is the most popular, but not the largest. Scotch Flag (or Musselburgh) makes a longer edible part, but it is not so thick.

Leeks are not eaten raw, but are used principally for flavoring soups, etc.; stewed and served with white sauce, they are a most dainty dish.

In *chives*, the slender green leaves are used chopped fine. It is essentially a salad plant. It is decorative, and hardy all winter. It is propagated by division, which should be done frequently, as otherwise the leaves will become coarse and tough.

GROWN FOR ITS HARDINESS

The *Welsh onion*, rarely grown, is like a magnified chives and is used for seasoning. It does not form a true bulb. There are annual and perennial forms. Its only place is in the herb garden. It has the merit of great hardiness and as such it is useful for a mild flavor in colder regions, just in the same way as the leek.



An Easily Made Plant Stand

I HAVE found a device for a window garden for renters in the humble washing bench. It may be bought at any department store in any size from three to five and one-half feet long, and arranged in the following manner will provide for the plants destined to grace it a really admirable substitute for a greenhouse bench.

Nail a 3-inch strip of wood to the edge of the top of the bench, fill any cracks there may be with putty or a good coating of paint, and then cover the enclosed space with two inches of sand. This provides the plants with a continuously moist place on which to stand, and allows you to give them as thorough a soaking as occasion may require without the slightest danger of the water



A common washing bench, edged with strips so as to hold a layer of sand, provides a means of watering plants indoors without wetting the floor

dripping on the floor. Another advantage of having the bench covered with sand is that the sand takes up any inequalities there may be in the surface of the bench, so that the pots always stand on the level.

If casters are placed on the feet it is an easy matter to wheel the bench from place to place, as conditions require.

The cost of my bench as shown in the photograph with the exception of the strips of wood, which I already had, is as follows:

Bench (5½ ft. long).....	\$1.33
Casters	.40
Enamel paint	.60

\$2.33

A washing bench is built very much on Craftsman lines, and when painted or stained to match the color of the room where it is to be used, it is really a very good-looking and acceptable piece of furniture. Mine is finished with white enamel.

New York.

M. K. F.

Watering and Potting Ferns

THERE are no foliage plants which can compare with the exquisite beauty of the ferns for decorative purposes; their finely cut and often oddly shaped fronds have a delicacy and gracefulness of habit foreign to all others. The more unusual kinds are more difficult to grow than the common house plants, and there are many that cannot endure the dry atmosphere of the dwelling. But the better known ferns can be easily grown as house plants, if attention is given to one or two points. Buy plants with not too young foliage, and gradually inure them to house culture. Young plants purchased in the spring, and repotted into larger pots, if necessary, will make handsome plants by winter.

Ferns make their growth during summer, and rest in winter. Nearly all of them like heat, shade and moisture in their growing season, so to have good plants for winter they must be grown in a rather close, shady place during the summer. The warm, enclosed end of a veranda is a good place. If many plants are grown, have a large box made, to hold one or more rows of pots. Fill the box with moss, which is kept damp, and plunge the pots therein, to their rims. This will keep the ferns moist at the roots. A plant that is required for table or room decoration may be removed from the box, and placed temporarily in a jardiniere, but should be replaced in the box the next day, or if the jardiniere is filled with damp moss, the plant can remain thus for a longer time. If allowed to become dry at the roots, the plant is ruined for the season. During the winter months, place the box in a warm, shaded window.

The kind of potting material used is one of the most important factors in fern growing. The best soil is a mixture made of two parts good garden loam, one part well-decayed manure, and one part sharp sand; this last to make the soil porous. Use clean, porous pots. Fill at least one-third of the pot with charcoal, or some other drainage material, then a layer of moss, to keep the soil from clogging the drainage, and lastly the soil, in which set the plant. In potting, do not firm the soil too much about the roots, for they prefer it to be rather loose.

Water freely as long as active growth continues, using slightly warmed water. During the winter months, when the fern is dormant, give only sufficient water to keep the soil from becoming dry. In the spring (April) repot the plant.

Moisture in the air is essential to the successful culture of ferns. This may be supplied to the ferns having coarse fronds, such as the sword fern (*Nephrolepis exaltata*), with a plant sprayer, but those of delicate fronds, like the maiden hair (*Adiantum*), would be ruined if the foliage remained wet for any length of time—the fronds becoming brown, and having a rusty appearance. For these latter, the necessary moisture is best supplied in the form of a vapor, by the aid of a cologne atomizer.

California.

ELEANOR M. LUCAS.

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Three volumes on the general subject of agriculture, written by Prof. William P. Brooks and published by the Home Correspondence School of Springfield, Mass., constitute one of the best foundations upon which to build an agricultural education which it would be possible to find. *Suburban Life*, July, 1905.

Appreciation

I wish to express my cordial approval of your educational work.

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In *New England Homestead*.



Two branches from a tree grown in a 12-inch pot. The photo was taken along in May.

Some Sound Advice

On Peach Growing In Greenhouses.

At the very start get it firmly fixed in your mind that any make-shift carpenter built greenhouse won't do—that a house constructed on scien-

tific greenhouse lines is absolutely essential to insure to you the success of splendid, evenly ripened, luscious fruit. So be prepared to spend money—not extravagantly, but enough to insure your having the right sort of a house—one that will not only grow peaches, the very best possible—but because of its right construction and arrangement, be economical to maintain.

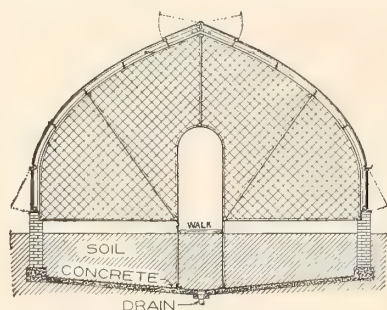
Our usual straight-roofed house is often used when the growing of trees in pots is preferred: then during the dormant months the trees are stored in an ordinary building or cellar, protected from frost and with sufficient light, leaving the house free for other growing purposes. When planted direct in the ground, the curvilinear construction gives more room for the spread of the trees. Some plant along the sides, and wire them up the roof, but a larger number can be planted with the cross trellis method, which requires that the house shall run east and west so the sun can reach both sides of the trellis all day. Masonry or cement borders to confine the roots are sometimes used, both on the out and inside of the

house as a protection from roots of trees and to insure a more perfect control of watering and enrichment.

This growing of peaches indoors is coming into tremendous favor and it's mighty interesting work. Peaches from your own greenhouse along in May are something to feel proud of. If you want peaches next year you must start this year. So take it up with us without delay—there's always some time lost in getting started. Call at our Green Room in New York, or write direct to us there.

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Section of curvilinear house showing the method of cross wiring, and the use of cement bottoms, or "borders" as the gardener calls them.



Raising Succulents at Home

THE amateur can find much pleasure in growing his own cactus plants from seed. Sow in a well-drained seed soil, and handle like any other seeds. After germination give less water than for other seedlings, or the young plants will burst, i. e., the skin will crack open, resulting in a scar that is permanent.

Making a cutting of a cactus is the easiest thing in the world. Just cut or break off a piece of the plant, and you are done! Since the tissues are so watery, the cut surface must be callused before the cutting is planted. Lay it on a shelf in a sunny situation, where there is a good circulation of air, for a few days.

Late May and June is best for starting the cuttings, because the wounds will then heal quickly and well. Similarly, collected plants should be received in the early summer, because they are so liable to suffer some damage in transit, but will heal quickly in summer.

Collected plants are generally without roots, or they are so badly damaged that they must be removed. Make a clean cut with a sharp knife (always use a sharp knife in gardening); and if the base of the plant is hard and woody, remove that also, because roots will start only from the fresh growing parts. Cut back to the soft, watery tissue, and expose to the sun until the wound has callused. Any diseased or decayed portion of the plants must be cut out; if this does not stop the spread of the trouble, cut it out again, and then cauterize the wound with a hot iron.

THE EASY SOIL PROBLEM

It does not matter much what sort of soil is used, so long as it is well-drained. That is essential. One successful grower uses equal parts of sandy loam, coal ashes, and sand, and advises the improvement of a clayey soil by adding to it a little air-slaked lime. Another, equally successful, uses equal parts of fibrous loam and old lime rubbish (plaster, etc.) from which the fine dust has been screened, with the addition of some clean, sharp sand. It is handiest to have the plants in pots, although they may just as well be grown in boxes. Even the smallest need drainage. A good rule to follow is to fill one-quarter to one-third of the pot with coarse drainage, such as coke, coal clinkers, or broken pots, over which put a little sphagnum moss, to keep the soil from sifting down among the drainage.

Select a pot just a little larger than the body of the cactus. Many people crowd

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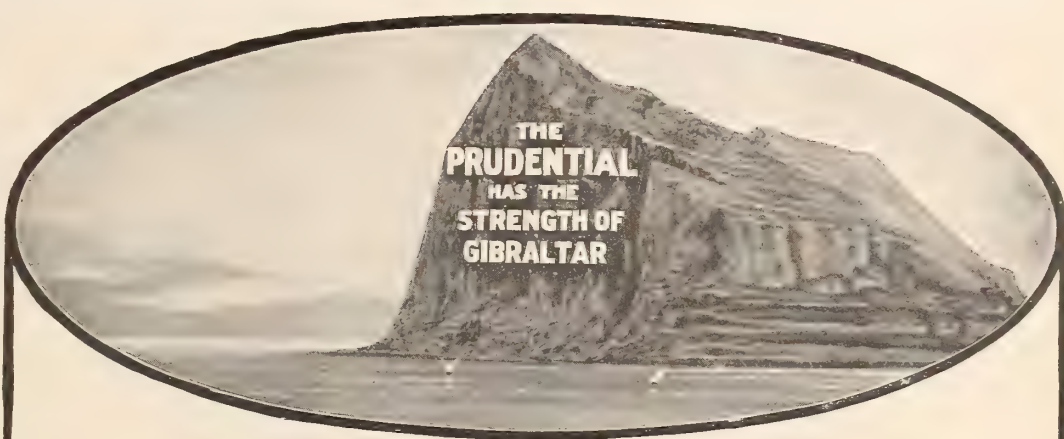
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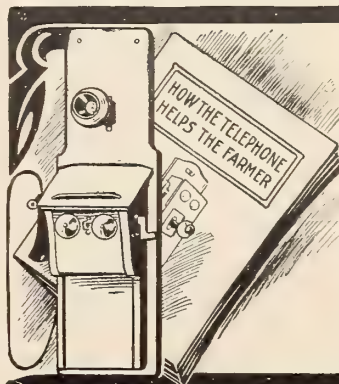
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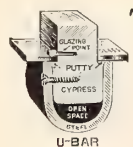
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New York

their plants into as small a pot as possible, but I believe this is bad, because the plants need some space in which to grow, and if the pot is small, it is impossible to water them properly. When potting, put the coarsest part of the soil next to the drainage, with the finer part above it, and around the plant, so inserting it that the bottom (be it rooted plant or cutting) is only a very little below the surface of the soil. After potting, give a little water, to settle the soil, and no more ordinarily until the plant begins to grow. Lightly syringe on all bright days. If the potting is done in early summer, and the plants are plunged outdoors, the water which they receive from the syringing will be sufficient for all their needs until growth begins.

IMPROPER WATERING AND ROT

Too much watering, or too rich and heavy a soil, will cause rotting of the plant at the soil line—the commonest cause of loss in amateur collections. This can only be avoided by watching, and giving water only when the soil becomes dry. When you do water, give enough to thoroughly dampen all the soil in the pot.

WHEN TO REPOT

A properly potted plant will not need shifting for some years, and will do all the better for not having the roots disturbed. If the soil becomes water-logged, or sour (perhaps growing moss) repot at once. Mealy bug sometimes attacks the roots. As soon as it is detected, shake the soil from the roots, and thoroughly wash them in clean water, repotting in a clean pot and new, clean soil.

INSECTS ON THE STEMS

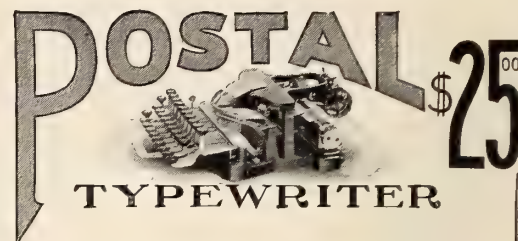
The most likely insect pests are red spider, thrip, scales, and mealy bug. The two latter are easily brushed off with a small brush, but if the stems are frequently syringed with clear water, soap suds, tobacco water, or a solution of fir tree oil, none of these pests will give serious trouble. The red spider will never appear if watering is frequent enough. The fir tree oil prevents thrips.

Cactuses are not helped by rich feeding. The only exceptions to this rule are old plants of night blooming cereus, and the crab cactus (*Epiphyllum*), which occasional waterings with weak manure water (about half the strength used for other plants) will benefit.

IDEAL GROWING CONDITIONS

The ideal place for cactuses in winter is a rather damp greenhouse, but they will thrive in the window garden, so long as they never get frozen. Try to keep the night temperature about fifty degrees. The drying of the soils under ordinary house conditions makes watering in winter a necessity. Planted out in a greenhouse, their requirements are very much less. The window gardener must remember that although they are desert plants, they do not naturally grow in small pots, exposed to drying draughts of desiccated hot air.

The growth of the plants will be improved



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if they are put outdoors when all danger of frost is past in early spring. Some people knock them from the pots, and set them in the ground, but it is better to plunge them—plant, pot and all—because they are more easily lifted. Place them in a well-drained border, fully exposed to the sun, and with a free circulation of air.

The opuntia is the most disagreeable of all the cactuses to handle because of the very small brown spines which grow in bunches all over the stem and fruits. These spines are barbed, something like a fish hook, so that when once they are in the flesh it is exceedingly difficult to remove them.

Because of these troublesome spines in the ordinary forms the so-called "spineless" cactus was hailed with great joy, the claim being that it would be a good stock food. There is nothing really new about it however as spineless cactuses of various genera are well known.

New York.

PARKER T. BARNES.

Purchaser's Guide to Euonymus

- A. Foliage deciduous
- B. Height ultimately 15 feet or more
- C. Autumn foliage brilliant
- D. Capsules scarlet
- BURNING BUSH 1. *E. atropurpureus*
- DD. Capsules pink
- HAMILTON'S EUONYMUS 2. *E. Hamiltonianus*
- CC. Autumn foliage not particularly brilliant: capsules pink
- D. Anthers yellow
- E. Capsules pink, with winged lobes; seeds white
- BROAD-LEAVED EUONYMUS 3. *E. latifolius*
- EE. Capsules red, pink, or purple
- SPINDLE TREE 4. *E. Europæus*
- DD. Anthers purple
- E. Capsules pink; seeds scarlet
- SIEBOLD'S EUONYMUS 5. *E. Sieboldianus*
- EE. Capsules pale pink; seeds white
- BUNGE'S EUONYMUS 6. *E. Bungeanus*
- BB. Height 6 to 8 feet
- C. Autumn foliage brilliant: capsules pale green; branches winged
- WINGED EUONYMUS 7. *E. alatus*
- CC. Autumn foliage not brilliant
- D. Capsules pink: warts on capsules
- STRAWBERRY BUSH 8. *E. Americanus*
- DD. Capsules yellowish red: warts on branches
- WARTY-BRANCHED EUONYMUS 9. *E. verrucosus*
- BB. Height 1 or 2 feet (*E. nanus*, if higher, is grafted to make a weeping tree)
- C. Stem rooting: branches erect
- RUNNING STRAWBERRY BUSH 10. *E. obovatus*
- CC. Stem erect: branches rooting, arching, or pendulous
- DWARF EUONYMUS 11. *E. nanus*
- AA. Foliage evergreen
- B. A tender, upright shrub: capsules pink
- JAPANESE EVERGREEN EUONYMUS 12. *E. Japonicus*
- BB. A trailer or climber, harder than English ivy
- CLIMBING EUONYMUS 13. *E. radicans*

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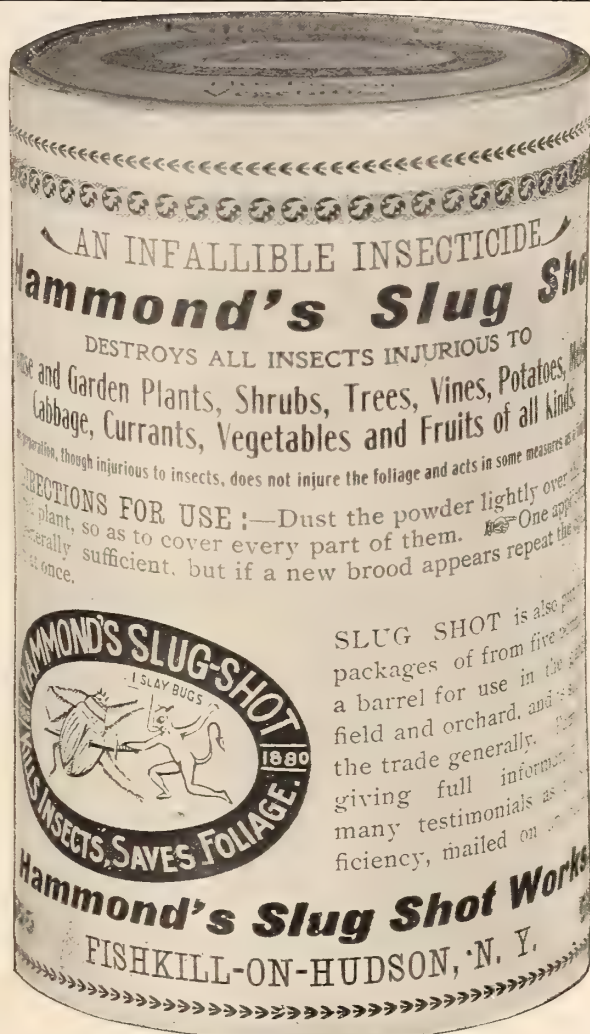
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NECTARINES

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PLUMS

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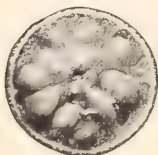
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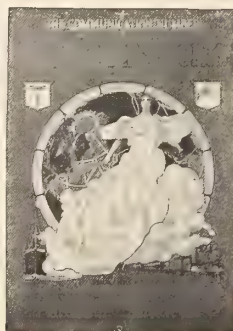
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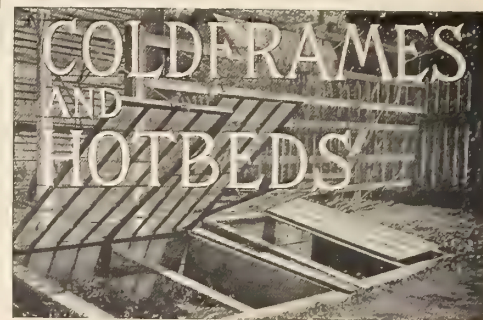
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The Only Way to Grow Large Mild Onions

THERE is a class of large, mild-flavored onions, of which Prizetaker is the best known, which to be successfully grown must be started in hotbeds about January 15th, in order that bulbs of large size may be properly grown and ripened off before the fall frosts arrive.

MAKING THE HOTBED

Make the hotbed two to two and a half feet deep, of well prepared horse manure. Collect the droppings every day; put them under an open shed, or cellar, to keep off rain and snow; turn frequently, to keep them from burning; and when sufficient quantity has been gathered make the bed.

Put the manure in even layers, and thoroughly tread it down, to keep the heat in. As soon as this is done, put on from four to six inches of good, rich soil. Put the sash on, and cover with mats or salt hay, and shutters. Bank the sides and ends of the frames with manure eighteen inches wide, to keep out the cold. Leave the bed in this condition for three or four days, to allow it to settle and warm through.

SOWING THE SEED

Sow the seed in drills one inch deep and four inches apart. I usually mark off the rows with a rake handle. Sow the seed rather thick, so as to get a good stand, cover with the hand, and rake the surface very lightly. Then I take a piece of board the length of the sash and one foot wide, place it on the bed, and walk on it, to thoroughly firm the soil. The seed germinates much better when this is done. Give a light sprinkling of water with a fine-rosed watering can. Cover with sash, and protect at night with mats and shutters.

Remove the covering on all bright, mild days, and if the temperature of the frame rises above 80°, give a little air from ten until two o'clock, closing up the frame while the sun is still on it, in order to retain as much warmth as possible. If the hotbed is properly made, no air will be necessary until the young onions appear, which will be in about two weeks.

WATERING AND AIRING

After the onions are up, exercise great care in airing and watering the hotbed, giving air only on bright and mild days. Maintain a temperature of 60° or 65° but, as the onions grow, gradually reduce it to 50°. Cold draughts must always be avoided. Water the young onions very sparingly, and use a fine-

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Most of us spend some few evenings along in the winter planning what we are going to do and plant in the garden the coming spring; it's pleasurable work, too—not the sort of pleasure that's more than half in the anticipation; nature and only nature actually gives full rewards. Then there is the greenhouse, it's interesting work planning the best place to build it, how it will look if placed as close to the house as you really want it—what you will grow, but the real enjoyment comes when things actually are growing in it—the few hours a week spent begin to yield their bloom wealth, and vegetables come along with all their out-of-season zest—that's why you ought to have a greenhouse. Send 5c. in stamps for "How to Get Started with a Greenhouse"—and begin planning at once. We build the very best kind of house—not cheap, clap-trap affairs—and you can be assured of pleasant dealing.

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rosed watering can. After they have made a good start, give a thorough soaking twice a week, and plenty of air, taking the sash off entirely on pleasant days. Pay strict attention to weeding, and once a week at least, thoroughly stir the surface of the soil, to sweeten it. A light dressing of air-slacked lime strewn over the surface, will be very beneficial.

By the middle of March the onions will have attained the size of a lead pencil. Harden them by leaving the sash off at night, except when there is danger of a hard frost, then about four inches of air can be left on by raising the sash at the back, and placing under it a block of wood. This will promote a sturdy growth, and fit them for their final quarters, to which they may be transplanted anywhere between March 15th and April 1st, according to the weather.

TRANSPLANTING TO THE OPEN

Onions delight in a cool, moist situation, and the soil cannot be made too rich. A liberal dressing of horse, hog, or chicken manure, well rotted, and thoroughly dug into the soil, is essential to success.

My method of transplanting onions is as follows: With a hoe make drills three inches deep and sixteen inches apart, set the plants four to six inches apart in the row, and about one and one-half inches deep. When taking them up from the hotbed, use a digging fork, being careful to get all the roots possible. Cut off about two inches of the onion tops (with a sharp knife or sheep shears, making a clean cut). This prevents them from toppling over, and they root much quicker. Place them in a basket, or flat; cover the roots with damp moss, to keep them from sun and wind, and transfer them to their quarters at once. Lay out the onions at the required distance. When ready for planting hold the onion in the left hand, giving it a slanting position, and with the right pull in the soil. Avoid cramping the roots. Firm well, and water thoroughly.

Cultivate thoroughly with a hand cultivator twice a week, keeping out all weeds; give frequent dressings of commercial fertilizer and nitrate of soda, and should thrip or onion maggot attack them, give a good dusting of soot or wood ashes, when the dew is on them.

HARVESTING THE CROP

As soon as the bulbs have matured thoroughly, which will be indicated by the tops turning yellow and bending down, pull them up. Select a dry, pleasant day for this. Throw them in windrows, putting four rows together; turn them over every day with the hands. After they have dried, place them in a cool, dry cellar or shed that is frost proof. Look at them once a week, picking out any bad ones there may be, to prevent them from spoiling the good ones.

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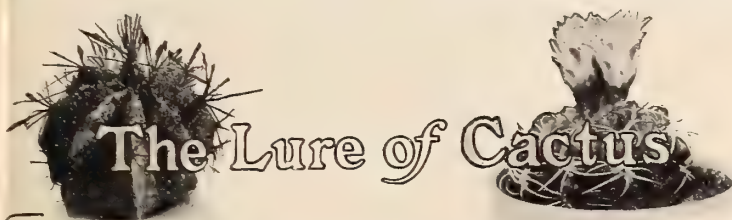
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UTILIZE THE BONES

E. H., Mass.—You can turn all of those bones into fertilizer at no cost, other than a little labor. Into the bottom of a barrel put a 6-inch layer of soil then a like layer of closely packed bones. Cover these with some wood ashes and dampen the whole with some liquid manure from the stable. As fast as the bones accumulate make successive layers until the barrel is full. On the top plant something which will make a thick sod—clover for instance. In about a year empty the barrel and thoroughly mix its contents, then put in a pile and allow to stand for a month when it will be ready for use. This fertilizer will be rich in both potash and phosphoric acid.

PREVENTIVE FOR CELERY BLIGHT

A. S. D., Iowa—The only disease which attacks celery goes under the name of "celery blight." While the plants are young spray with Bordeaux mixture but later spray with the ammoniacal copper carbonate solution as this will not stain the plants. To make, use copper carbonate five ounces, ammonia (26° Beaumé) three pints, water forty five gallons. Make a paste of the copper carbonate with a little water. Dilute the ammonia with seven or eight times as much water. Add the paste to the diluted ammonia and stir until dissolved, then allow solution to settle and use only the clear liquid to which add enough water to make forty-five gallons. The solution loses its value by standing.

CARE OF HYDRANGEAS

J. N. O., Mass.—*Hydrangea hortensis* is hardy at least as far north as Boston, i. e. the roots will live over winter if mulched, but the tops will die back to the ground. The usual practice is to dig them up as soon as the first heavy frost threatens and pot, using a fairly rich compost. Store in a cool, frostproof place and water sparingly—keep them on the dry side but do not allow the wood to shrivel. This will ripen the wood, and they will be in good condition to force by January or they may be left in storage until spring, and again planted in the open for flowers in August. At Newport, R. I., this hydrangea (and its many varieties) is carried over by laying down the canes and covering with earth. For Easter flower, bring the plants into a cool house (45° to 50° night temperature) in January. When they have made a new growth of two or three inches gradually raise the temperature (2° or 3° a week) to sixty-five degrees. The trusses will be fairly well developed by that time—middle to last of February. When the flowers have turned to a rosy blush, remove the plants to a cool place.

GRAPE PROPAGATION

A. E. G., Mass.—The wild grape is easily propagated by seeds which may be sown outdoors as soon as ripe, in October, or they may be stratified and stored in a cool place where they will not be destroyed by vermin—mice, etc. Some growers prefer to start them under glass giving them a gentle bottom heat. The grape is easily increased by layering either green or ripened wood. Cover the canes with two or three inches of soil in either fall or spring, preferably the latter. In August or September lift the canes and they will have roots to every joint. Divide into separate plants. The easiest way of increasing the grape is by hardwood cuttings taken any time between November and February. In commercial vineyards the prunings are used. Make the cuttings long enough to include two or three buds. Tie in bundles of twenty-five to fifty, bury them half their depth in damp sand and store in a cool dark cellar. Be sure to get the butt ends of the cuttings in the sand. By spring the cuttings will be callused. Plant them in the open when the soil can be worked (April). Set six to eight inches apart in rows three feet apart and deep enough so that only one bud is above the ground.

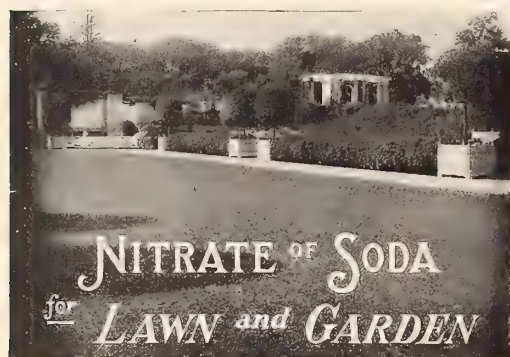
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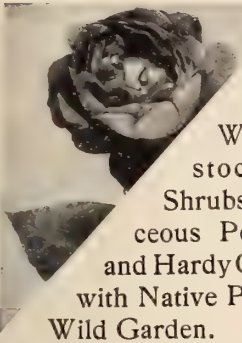


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1907



COUNTRY LIFE
IN AMERICA



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THE GARDEN
MAGAZINE

DOUBLEDAY, PAGE & CO. NEW YORK

CONTENTS. THIS IS ONLY A PARTIAL LIST OF THE SUBJECTS COVERED

The Moon; What its Effect is
on Weather and Crops.
How to Obtain Standard Time.
Rates of Postage.
Game Laws of the United States.
Legal Holidays in the Various
States.
Rules of Foretelling the Weather
with and without a Barometer.
Description of the Weather Bu-
reau, its Free Service, and the
Meaning of the Weather Sig-
nals.
When to Expect the First Frost.
Organization of the United States
Department of Agriculture,
What its Special Purpose is,
and How it Will Help the
Farmer.
Farm Law.
Name and Location of all the
State Experiment Stations with
a Note of their Free Service to
Farmers.
Farmers' National Congress.
National Wool Growers' Associ-
ation.

National Dairy Association.
National Forestry Association.
National Good Roads Associa-
tion.
National Bee Keepers' Associa-
tion.
National Federation of Horti-
cultural Societies.
National Nut Growers' Associa-
tion.
National League of Commission
Merchants.
National Live Stock Breeders'
Association.
Southern Cotton Association.
Names and Addresses of Offi-
cials in Charge of Farmers' In-
stitutes.
Acreage, Production, Value, Gen-
eral Information and Statistics
of the Principal Farm Crops,
Fruits and Vegetables of the
United States in 1906.
Wheat, Oats, Rye, Barley, Buck-
wheat, Cotton, Sugar, Hay,
Rice, Hops, Potatoes, Onions,
Beans, Flax.

Information and Statistics of the
Live Stock in the U.S., includ-
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Sheep, Poultry, Milk, Butter,
Egg and Cheese Statistics.
A Spray Calendar.
How and When to Spray.
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eases of Crops and How to
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eases of Cattle, Horses, Sheep,
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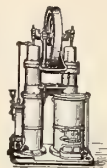
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PROPAGATING ASPARAGUS

H. H. S., Mass.—*Asparagus Sprengeri* is easily propagated by seeds which ripen about mid-winter. If sown at once they germinate quickly. Old plants may be divided. *A. plumosus* and *smilax* (*A. medeoloides*, known in the trade as *mysiphyllum asparagoides*), are grown from seeds sown in February.

PROPAGATING ARAUCARIAS

P. T. N., Penn.—The araucarias may be grown from seeds or from cuttings. Sow the seeds in December. Top cuttings are the only ones to use. If cuttings are made from the branches the plants will be one-sided. To get sufficient top cuttings, after the leader has been taken out and the new shoots used, girdle the trunk just above the second whorl of branches from the top. This will cause a lot of new shoots to start. Cuttings will root in a cool house, if they have bottom heat, in eight to ten weeks.

STORING CALADIUMS

F. A. B., Iowa—Fancy-leaved caladiums (*C. bicolor*) are dried off gradually until the bulbs are thoroughly ripened. They are left in the pots in which they grew during the summer and stored in a temperature between 50° and 60°. The common elephant's ear (*Colocasia antiquorum*, var. *esculenta* known in the trade as *Caladium esculentum*), is taken out of the ground as soon as frost has touched its leaves, the leaves trimmed off, and stored in the cellar or under greenhouse benches where it will be dry and away from frost.

CARE OF FALL SOWN SWEET PEAS

G. W. D., Ohio.—Sweet peas sown late in September will start to grow immediately and will have made an appreciable growth before hard frost comes. To protect the young plants over winter give a mulch three or four inches deep of salt hay, loose litter, or other coarse material. The young plants cannot stand too deep a cover over winter. It is not the cold of winter which injures them but the thawing and freezing of the early spring which does the damage, so increase the mulch in March. As an additional protection put up a wind break—a 10- or 12-inch board set on edge on the north side of the row.

PROLONGING LIFE IN OLD TREES

W. P. F., Penn.—To preserve the old oak trees, the decayed and dead branches should be carefully pruned back to the trunk or main side limbs. In many cases a live growth may be encouraged by heading back the living branches two or three feet, as the case may be, to a strong-appearing side branch, which will thereby make a new growth, to take the place of the part cut away. Paint all wounds made by the cutting off of branches, to prevent further decay, and encourage the bark to heal over the wound. A good paint for this purpose is made from one part finely powdered charcoal and three parts fresh slaked lime mixed with linseed oil to the consistency of thick paint. To encourage a new root action a top dressing of good loam may be put over the ground in the spring to a depth of from six to twelve inches, as the surroundings will permit, and if a liberal quantity of good manure is added (mixed with the loam) the results will be better.
J. F. D.

TRANSPLANTING TREES

W. J. B., Penn.—The best time to move your pin oak (*Quercus palustris*) and flowering dogwood (*Cornus florida*) will be in the spring. Even small trees of the dogwood cannot be moved in the fall; small pin oaks can be but only with considerable risk, so you had better delay moving until spring. To insure success root-prune trees. Dig a trench about the tree as far from the trunk as the branches extend—four feet will be plenty for your trees as they are only five years old—and two feet or more deep. The idea is to make the large roots throw out a mass of fibrous roots. In the spring be careful not to injure these new roots, and when you have taken the ball of earth and roots out of the soil cover it with damp sacking to keep the roots from drying. Better success will be had with these trees if the ground is prepared this fall. Dig a hole four feet square and two and a half or three feet deep where the tree is to stand. When removing the soil throw the stones in a pile by themselves. The bottom of the hole should be picked loose. Put the stones in the bottom of the hole for drainage and then fill the hole with good soil. The best way to do this is to have piles of peat and manure beside the hole. Throw in a 3 or 4-inch layer of soil, then one of manure, and one of peat and mix them in the hole. Repeat this until the hole is full. Round the top to allow for settling. Put a stake in the centre of this trenched ground so that next spring you will know just where to plant the tree.



Sweet, Fragrant Lily of the Valley

Do you wish a succession of these delicious blossoms for your home through bleak winter? Plant the pips in pots or boxes—12 to 5 inch pot—using good soil, leaving crowns half exposed. Place out doors or in cool cellar. Hard frost does not injure them. Bring in as needed and place in warm spot; never allow to get dry; flowers appear 4-5 weeks. We offer, delivery free, doz., 40c; 25, 75c; 100, \$2.75.

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Great, glistening bunches of pure satiny-white flowers—raised in water same as Chinese Narcissus. Place 6 or 8 bulbs in a bowl, supporting them with pebbles or gravel; keep in dark place till roots form and tops appear; bring to light and sun; flowers in 5 to 6 weeks. Succession of bloom by planting some bulbs every week. Per doz., 50c; 25, \$1.00; 100, \$3.00. DELIVERY FREE.

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HEN MANURE furnishes fertilizing elements in more concentrated form than any other manure. Owing to its concentration, it should be mixed with some less active material to increase its bulk. The character of material to add depends to a great extent on whether the garden soil is light and sandy or a heavy clay. For either light or heavy soils it may be mixed with wood ashes, using one to three parts of hen manure to one of ashes. For light, sandy soils with little humus mix with three or four times as much rich loam or leaf mold. For heavy clay soils use a sandy loam in place of the leaf mold, or road dust, or even coal ashes. Either of these composts may be applied as top-dressings or directly to the plants. On a heavy clay loam soil, I have used the refuse from the hennery composted with wood and coal ashes in the proportions mentioned and one part of this mixture was incorporated with ten parts of stable manure.

New York. F. E. B.

Forcing Roses for Easter

GO into the garden now, dig up a few roots of hybrid perpetual and rambler roses, and put them in the cellar. Bring them into heat (or the window will do), about January 15th. Prune to leave only three or four buds to a cane, on the hybrid perpetuals; do not prune the ramblers. Be sure to start them at a low temperature—say 50°. The Crimson Rambler rose can be had in flower in ten weeks from day of starting. Syringe the canes each clear morning. When the buds start raise the temperature to 58°. It will take thirty days for flowers to develop after the buds break.

IN THE GREENHOUSE

Watch for red spider, now that heavy firing is being given—syringing the plants with clean water; using considerable force, and striking the under side of the leaves will clear them off.

Expect a sudden sharp, cold, windy night! It will usually injure plants in the small greenhouse; but often its effects can be minimized by "steaming down" late in the evening. After sundown, well wet the heating pipes, and so fill the house with vapor. This will condense on the glass, and ice will form in any cracks.

Buy tobacco stems, to spread upon the greenhouse benches, around the flower pots. This will help to keep down green fly, and some may also be packed around the pots in the window garden.

New York. PHINEAS NOLTE.

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Valuable trees are in constant danger and should have professional care every year. We put trees in perfect condition for a reasonable charge. Tree Surgery, Pruning, Removing Dead Wood, Spraying, and Fertilization are handled by a large force of treesmen and all inspections are made by graduate specialists from the Massachusetts Agricultural College. The nature of the work requires practical training and equipment, and it is wholly apart from the duties of gardeners. Spraying for San Jose Scale, Elm Leaf Beetle and all Insect Pests.

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Nature has given us such a wealth of yellow flowers in autumn that gardens are sometimes overrun in September by a riot of coarse flowers and monotonous color. One of the most refined and distinctive yellow flowers in cultivation is *Helenium Autumnale*, which anyone can distinguish at once from a sunflower. It is of the same type of beauty as a Gaillardia, the "ravs" being wider at the apex and regularly indented. Why not try all the Heleniums worth growing? Each of the kinds mentioned below supplements the master of the genus in some way as partly indicated below.

H. AUTUMNALE.

Deep golden yellow flowers in August and September, 4 to 5 feet.

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Large, clear, yellow flowers in branching panicles. September, 5 to 6 feet.

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A new species with deep yellow flowers and black disk, long stems, 2 feet.

H. GRANDICEPHALUM STRIATUM.

Of robust habit, growing 3 to 4 feet high, with flowers from 1 to 2 inches in diameter, in large heads of a deep orange color, striped and splashed with crimson; in July and August.

H. HOOPSEI.

Bright orange-yellow flowers 2½ to 3 inches in diameter, early in June and again in fall, 2 to 3 feet.

H. PUMILUM.

A fine summer and autumn flowering perennial, growing from 1 to 2 feet high, with flowers of a golden yellow.

\$1.50 per dozen, \$10.00 per 100, except
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The object of all house-painting is to combine these qualities: The paint that longest protects a building at the lowest average cost per annum affords the most efficient and economical protection; that which yields the purest and most lasting tints is the most beautiful. **OXIDE OF ZINC** in paint increases its protective efficiency, decreases its cost and enhances the purity, brilliancy and durability of its tints. All good modern house paint is based on **OXIDE OF ZINC**.

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We do not grind zinc in oil. A list of manufacturers of zinc paints sent on application.

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is the title of *Our New Catalogue for 1907*—the most beautiful and instructive horticultural publication of the day—**188 pages—700 engravings—6 superb colored plates—6 duotone plates of vegetables and flowers.**

To give this catalogue the largest possible distribution, we make the following liberal offer:

Every Empty Envelope Counts as Cash

To every one who will state where this advertisement was seen and who encloses **Ten Cents** (in stamps), we will mail the catalogue,

AND ALSO SEND FREE OF CHARGE

Our famous 50 cent "**HENDERSON**" COLLECTION OF SEEDS containing one packet each of *Giant Mixed Sweet Peas*; *Giant Fancy Pansies, mixed*; *Giant Victoria Asters, mixed*; *Henderson's Big Boston Lettuce*; *Early Ruby Tomato*; and *Henderson's Half Long Blood Beet*, in a coupon envelope, which, when emptied and returned will be accepted as a 25-cent cash payment on any order amounting to \$1.00 and upward.



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These workmen are engaged in the very simple operation of laying a floor of

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the most elegant, durable and satisfactory flooring material made. This shows one of the beautiful designs of this tiling, of which there is almost infinite variety, and the manner in which it is executed.

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with detailed information regarding Pennsylvania Rubber Tiling, should be in the hands of all architects and builders. Mailed Free on request.

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Blooming In Your Own Yard

From May to October — for the price of one florist's bouquet. You can easily grow American Beauties or any other variety of roses you wish — and grow them successfully — by our methods — in your own garden.

You can have cut flowers all summer at the cost of a very light expense — and a little pleasurable and healthful work. Our New Free Catalog — “ROSE LEAVES” — contains in a condensed form most valuable information for the amateur rose growers and gardeners. It lists — besides our American Beauties —

105 Other Varieties of Roses

including some entirely new ones, among which is the wonderful new Rambler Rose — “LADY GAY” — also some beautiful new kinds sold exclusively by us. This book explains to those who have never tried to grow roses before — or have failed growing them — how they can make success sure by using the Heller mature two and three year old bushes. It gives new ideas on rose culture — complete directions as to planting, watering and cultivation — as well as the location of rose beds — and directions for use of roses in landscape gardening.

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Don't miss sending for “Rose Leaves.” It's free, but too valuable for any amateur gardener to be without.

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NEW CASTLE,
IND.

VAUGHAN'S NEW CANTELOPE

HOODOO

As like as two peas in a pod.

THE story of the growth and development of a new and better table melon than those in common use makes a horticultural record of unusual interest. All of the Garden Magazine readers may not know or realize the years of careful selection and hybridizing necessary to secure and fix a new fruit of value.

Mr. Paul Rose, in whose Michigan fields this new variety, the **HOODOO**, originated, has spent a lifetime in growing Cantelopes. His shipments have brought the best prices in the big markets of the Central States, Buffalo, Pittsburg, Chicago, Columbus and other cities. His specialties have been Osage, Osage Gem, Paul Rose (Petoskey) Netted Gem and this his latest, the **HOODOO**. Four of these have been introduced to the public by Vaughan's Seed Store and not one of them has been a failure,—all are grown largely to-day.

It need not be said that Mr. Rose has been constantly watching for a better melon and ready to notice, save and improve any variation in Cantelopes that comes nearer to the perfect market sort. Mr. Rose now has Cantelope plantations in Michigan, Illinois, Texas, Alabama, Indiana and Tennessee.

WHAT OTHERS SAY

Pronounces the **HOODOO** the Best Melon

"We have grown **HOODOO** four seasons, both in field and under glass. Far from bringing us bad luck it has given us our best melons every year, holding off blight ten days longer than Emerald Gem, Paul Rose (Petoskey) or Rocky Ford Netted Gem. It would seem Mr. Rose has achieved complete success and we feel certain this new variety will not **HOODOO** its growers."

The Rural New Yorker.

In A Class By Itself

"The **HOODOO** Melon is in a class by itself, totally unlike any other Cantelope in flavor and has a very deep color."

Trotwood's Monthly, Nashville, Tenn.

Real Hybridizing

Mr. Paul Rose wrote as follows March 8, 1906:

MR. J. C. VAUGHAN, Pres.,
Vaughan's Seed Store,
Chicago and New York.

Dear Sir:

The **HOODOO** is an out-growth of the Petoskey. I have been working for some time to get a melon of more uniform size, solid netting, of a rounder form, tough netted rind and a much more hardy foliage. I have found the **HOODOO** to be more blight resisting than any other variety that I have ever grown. I think that it will prove the best shipper of them all; retaining the high quality of the Petoskey (Paul Rose). It is really some later than the Gem varieties, but more prolific. No seeds have been sold to anyone, I am not looking for anyone to buy seed. I only want to perfect this Cantelope and give the public something that is a little better than the best.

Yours truly,

PAUL ROSE.

This new melon, which has been given by Mr. Rose the peculiar and distinct name **HOODOO**, he has placed with us for distribution. We promise that it will be no **HOODOO** in the garden, but rather the most perfect Cantelope for general use.

Its Description

The **HOODOO** is the ideal basket and crate melon, the fruits average 11-2 lbs., are thickly netted, as hard as a bullet, extra strong at the blossom end, of a very handsome appearance. The flesh is very thick, of fine firm texture, not stringy, rich orange in color, and of the sweetest flavor. The seed cavity is very small; it is a scant seed producer—30 melons yielded but one pound of seed. The well netted rind is very tough and rubber-like. The vines are vigorous, healthy, and the most blight resisting of any we have seen. *The Rural New Yorker* says: "It holds off blight from a week to ten days longer than Vaughan's Paul Rose or Petoskey (the most blight resisting up to date), the 'Emerald Gem' or the 'Rocky Ford' strain of Netted Gem."

The Best Ever

"I think the **HOODOO** the best melon I ever ate."

C. B. Compton, L. & N. Ry.

Never Tasted a Finer Melon Than the **HOODOO**

"We have never tasted a finer melon, no matter where grown, than your **HOODOO**, received today from Michigan. If the product duplicates the melon, we should have no fear of handling on this market all that could be grown. The melons you shipped us on the 18th and used on the 24th, were of a superior quality. The party who purchased your Tennessee stock was so well pleased that he called again and again for that variety. They were at that time being used jointly with the Rocky Ford product."

Phillips & Sons, Commission House.

Advises Growers to Try the **HOODOO**

"I cannot say too much in favor of this melon and will advise all growers to try the **HOODOO**."

F. M. Welch, Buffalo.

(**HOODOO** sold by Mr. Welch at \$4.50 per case, while Rocky Ford Netted Gem sold at \$3.00 and \$2.25.)



A grand successor to, and from the same breeding as those three splendid melons—The OSAGE, the PAUL ROSE (Petoskey), and VAUGHAN'S OSAGE GEM. Each in succession a market leader in its time.

Edition, more complete than ever, A Mirror of Horticulture, Four Complete Departments in Gardening. The Best Flower Seeds in America. 160 pages. Price for **HOODOO** Melon Seed, one packet 20 cts.; 3 pkts. for 50 cts. prepaid with catalogue. For market gardeners 1-4 lb. sealed packet prepaid for \$5.00. While the supply is limited, we hope to see a few seeds sown in every good garden for 1907.

The 1907 Catalogue

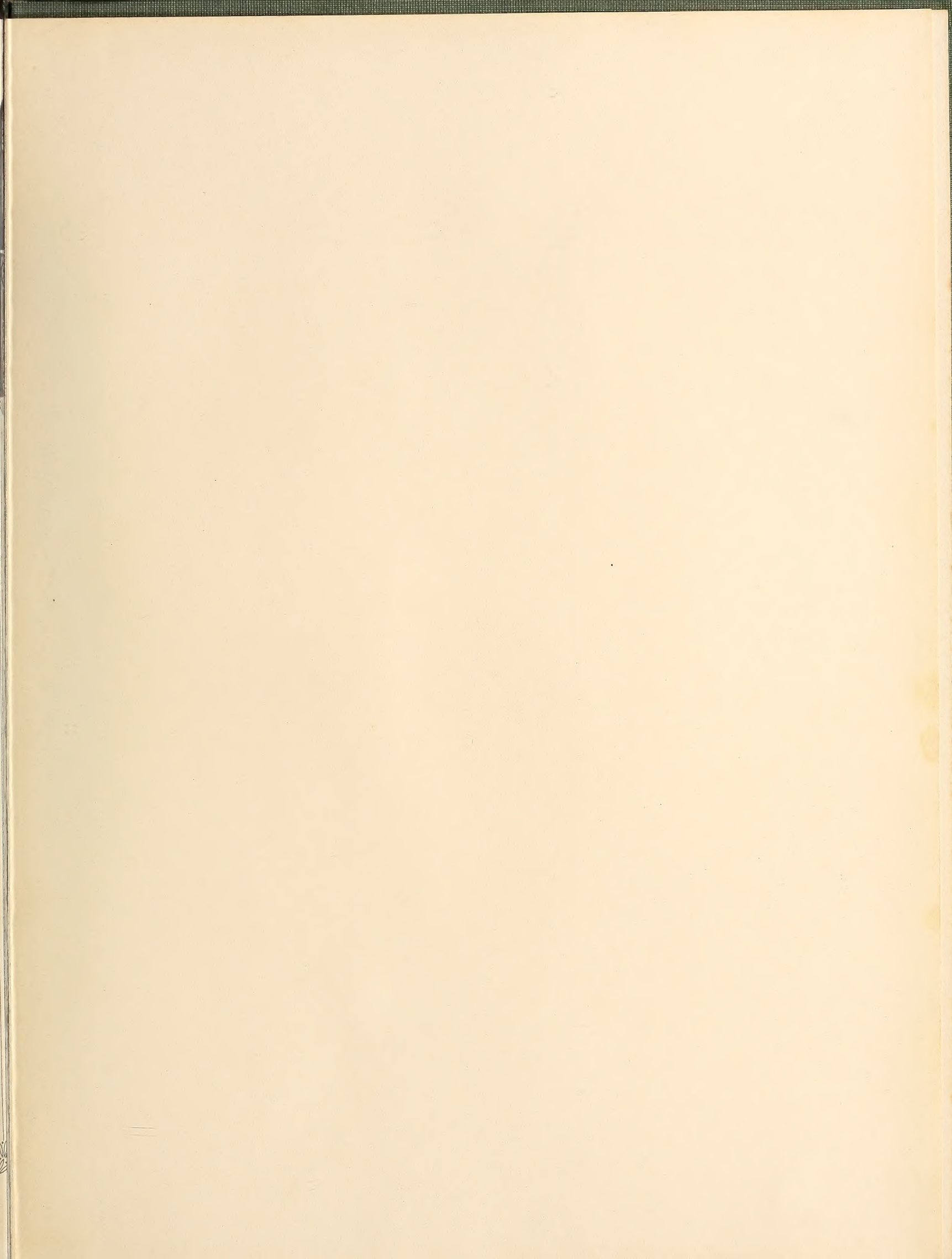
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